PIT AND QUARRY

SEPTEMBER 1952

In this Issue . . .

Penn-Dixie, Kingsport, Switches to Wet Process • 700-Yd. Daily Backfill Output • Kroeger Quarry Eliminates Loading Delays • N.C.S.A. Directors Hold Summer Meeting • Protecting Wire Rope From Wear and Weather • Fenton's 250-T.P.H. Plant • Wet Cyclone Recovers Wasted Fine Sand

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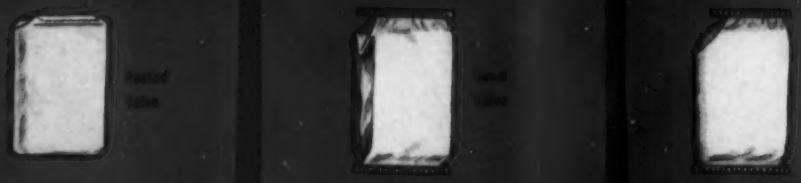
Pit of Arvon Sand & Gravel Company, Arvon, Calif., Showing Bench System of Recovery

DEPENDABLE as a source... DEPENDABLE as a service

KRAFT BAG MADE-TO-ORDER HEAVY-DUTY



MULTI-WALL SHIPPING SACKS

Custom-made to fit your specific needs, Kraft Bag Multi-Wall Shipping Sacks render full value in service—deliver full value to your customers... flexible in filling, rugged in handling, tough in transit, they empty c-l-e-a-n, with less dusting or sifting!
3 GENERATIONS OF BAG SPECIALISTS
SELF-CONTAINED • SELF-SUSTAINING
producing our own pulp and paper and other components in our own integrated plants, at Gilman, Vt. and St. Marys Ga.
2 to 6 ply plain or printed 1 to 4 colors
There is no substitute for kraft!
Gilman PAPER CO.
KRAFT BAG CORPORATION
KRAFT BAG CORPORATION
GILMAN PAPER COMPANY SUBSIDIARY
630 Fifth Avenue, New York 20, N.Y.
Daily News Bldg., Chicago 6, Ill.

If your product fits into a bag — we'll make the bag to fit your product.

Tough answer to a *Tough* problem

A SUPER-BRIGHT RED COVER AIR HOSE

EVEN in the most rugged hose service — direct connection to compressors in mines, quarries and construction operations — you can depend on REDWING-H Cord Air Hose for longest, trouble-free service.

That's because this hose was developed by the G.T.M. — Goodyear Technical Man — to take hard knocks in stride. Everything from its oil-resistant tube to the red cover of tough, resilient stock adds up to long life at lowest over-all cost.

Ask the G.T.M. about REDWING-H Cord Air Hose for your tough jobs. Or see your nearest Goodyear Industrial Rubber Products Distributor. Available in continuous lengths, for working pressures from 200 to 350 lbs. psi maximum; sizes from ½" to 1½" I.D.

GOODYEAR INDUSTRIAL RUBBER PRODUCTS
GR-Specified
REDWING-H CORD AIR HOSE
A
B
C
A—synthetic tube is seamless, nonporous, non flaking, oil-resistant
B—two or three braids of high-strength rayon reinforce against shock blows
C—red cover of heavy, resilient stock bounces away abrasion, cuts, gouges

LOOK FOR YOUR GOODYEAR INDUSTRIAL RUBBER PRODUCTS DISTRIBUTOR *in the yellow pages of your Telephone Directory under "Rubber Products" or "Rubber Goods." He handles Hose, Flat Belts, V-Belts, Molded Goods, Packing, Tank Lining, Rubber-Covered Rolls built to the world's highest standard of quality.*

GOODYEAR

THE GREATEST NAME IN RUBBER

Redwing—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

PIT AND QUARRY, September, 1952, Vol. 45, No. 3, Published monthly by the Complete Service Publishing Company, 431 South Dearborn Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and posessions, Canada, Central and South America; elsewhere $3 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

This rugged job... required rugged Air Compressors

1. **THE JOB:** eliminating grading and sharp curves which necessitated removing 100,000 yards of rock. *Time:* approximately 55 days. *Location:* 2½ miles of road construction on Route 100 to the new extension of the Pennsylvania Turnpike.

2. **EQUIPMENT USED:** a 600 Schramm and two 315 Schramm Air Compressors, operating four Wagon Drills.

3. **CONTRACTOR:** C. W. Good, Lancaster, Penna. He comments: "The rock to be removed was extremely hard, a composition of Brandywine Granite and Limestone... but with Schramm Air Compressors and Wagon Drills on the job, we had no trouble keeping ahead of schedules."...

   And:

   "I can get the best performance out of Schramm Air Compressors... no loss of time for repairs, and, when replacements become necessary the interchangeability of parts on all Schramm Compressors has simplified the servicing irregardless of size or capacity."

Schramm Air Compressors range in size from 20 to 600 cu.ft. actual air delivery—for your specific requirement.

For full details write for free Schramm Booklet.

SCHRAMM, INC.

The Compressor People

WEST CHESTER PENNSYLVANIA

SCHRAMM AIR COMPRESSORS

NOW - *a versatile new*

truck body!

Side-dumping over an embankment.

Side-dumping into a crusher hopper.

for all 'round off-highway hauling

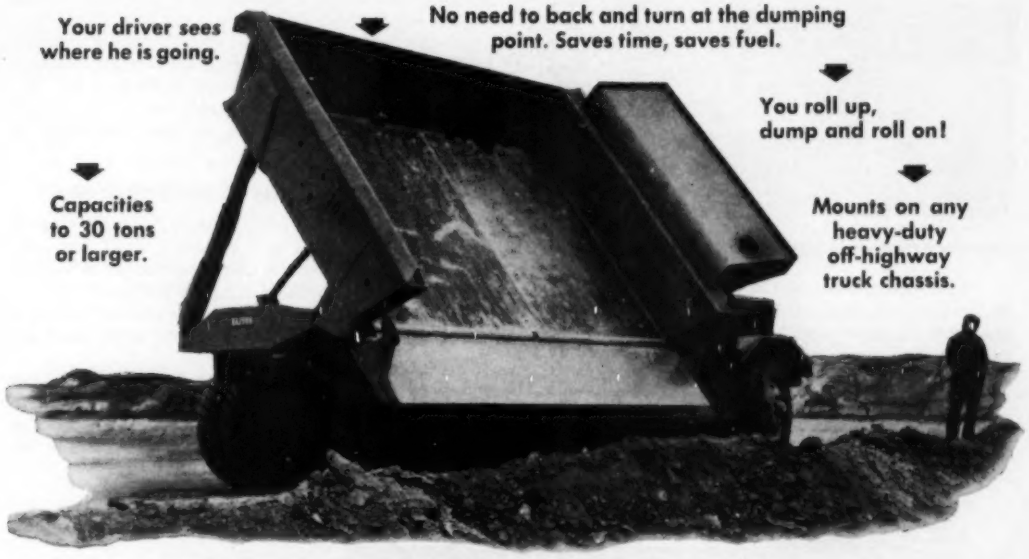
Here's the versatile side-dump truck body you've been waiting for—built to mount on any off-highway truck chassis—to handle any type of earth, rock and ore—on any road—against any grade—to dump anywhere, at will.

It's the rugged, rock-proved Type BD hydraulically dumped body featuring EASTON's patented automatic down folding side gate.

This fast, versatile hauler switches easily from job to job, handling rock, ore, earth or mixed loads over any road or grade that your chassis can negotiate. It's a newcomer, introduced a little more than a year ago, rapidly winning interest for fast, low-cost hauling in many types of off-highway service. For complete information ask your local off-highway truck salesman, or write to:

Easton Car & Construction Company, Easton, Pennsylvania

Now you can have these big side-dump advantages in a versatile side-dump unit


Your driver sees where he is going.
No need to back and turn at the dumping point. Saves time, saves fuel.
You roll up, dump and roll on!
Capacities to 30 tons or larger.
Mounts on any heavy-duty off-highway truck chassis.

EASTON SIDE-DUMPS

B-1053

Gates V-Belts are chosen to keep HELICOPTERS aloft!

McCulloch Tandem-Rotor Helicopter

(Above) Two-place helicopter employs tandem-mounted, intermeshing rotors—a total of six rotor blades—powered by a 200-hp, six-cyl., aircooled horizontal engine installed at the rear. (Lower left) Gates-engineered V-BELTS, shown to rear of the engine, transmit power from the engine to the main drive shaft which in turn drives the reduction gearing for the rotors.

Because a helicopter is air-borne entirely by the turning of its rotors, McCulloch Engineers who designed this helicopter and supply it to the Navy had to be sure that the drive to the rotors was, above all, safe and reliable—a drive that would not fail when the helicopter was in the air.

The special difficulty in designing this drive was the extreme *compactness* required.

On small diameter pulleys and short center distances, the drive must handle 200 horsepower for 1000 hours at cruising speed and 500 hours at high speed. Ordinarily, it would have been impossible to achieve these results.

A Notable Application of Gates SPECIALIZED Research

However, Gates had developed a V-Belt which in thousands of applications had proved to have the exact characteristics required for this helicopter drive—and Gates had also developed design data which showed at once the applicability of this belt.

It was not by accident, therefore, that Gates Engineers were at once prepared to supply a V-Belt capable of handling this most exacting assignment and—in close co-operation with McCulloch Engineers—they developed the drive shown which has most successfully met all requirements.

Gates readiness to meet successfully *any* V-Belt Drive assignment is possible because Gates runs an *average* of 32,000 hours of testing *every week* on V-Belts alone! (32,000 hours is equivalent to *five years* of life for one belt.)

And the real value to you of such exhaustive testing is this: Laboratory findings are carefully checked by tests made under actual field conditions and the *results* are at once reduced to *usable data* for the design of V-Belt Drives to *perform whatever task may be required!*

Phone for a Gates Field Engineer

If you have a difficult drive to design, or if some drive in your plant is giving trouble, or if you only want to be sure what size and construction of V-Belts will give the most efficient and the lowest cost service on any particular drive—you have only to phone a Gates Field Engineer, *always near you* in all industrial centers.

Just look in your phone book under "Gates Rubber." A Gates Field Engineer will come right to your plant and put at your service the full benefits of Gates V-Belt knowledge and experience *without the slightest obligation!*

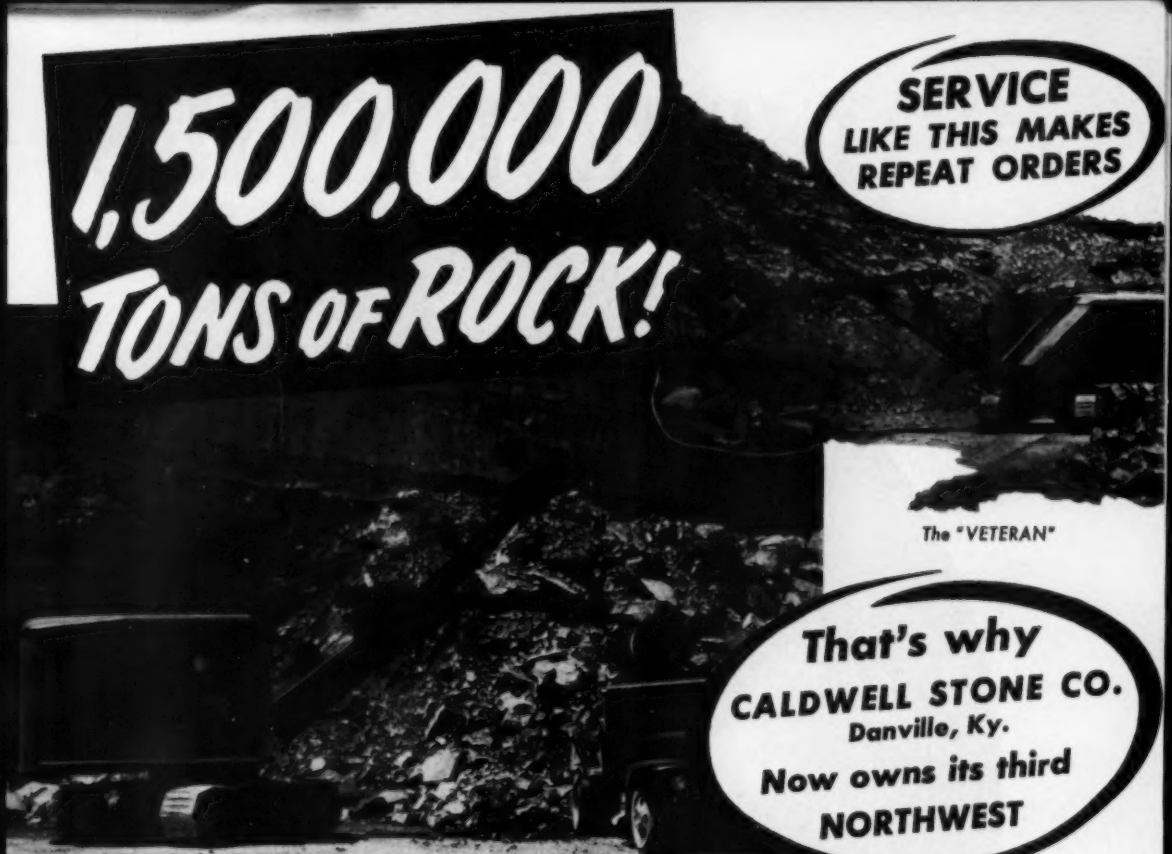
ENG-522

Gates VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

THE GATES RUBBER COMPANY
DENVER, U. S. A.
The World's Largest Makers of V-Belts

1,500,000 TONS OF ROCK!

SERVICE LIKE THIS MAKES REPEAT ORDERS



The "VETERAN"

That's why CALDWELL STONE CO. Danville, Ky. Now owns its third NORTHWEST

● The old Northwest veteran, above, was first sold in 1926 and has worked steadily all its life. It had already seen extra years of hard service when it was bought by Caldwell Stone Co. of Danville, Ky., in 1934, eighteen years ago. With Caldwell Stone it is known to have handled upwards of a million and a half to two million tons of rock since that time. In the 26 years of this Northwest's busy life, three million tons of output would be a conservative estimate.

The owner's say, "It still does a *man's* job and we use it a great deal, especially when we have *something tougher* than usual to handle." (we're talking about a 26 year old rig)

These are among the things that have made so many Northwest repeat orders. That is why a new Model 25 Northwest (the one in the lower picture) is working now in the Caldwell pits.

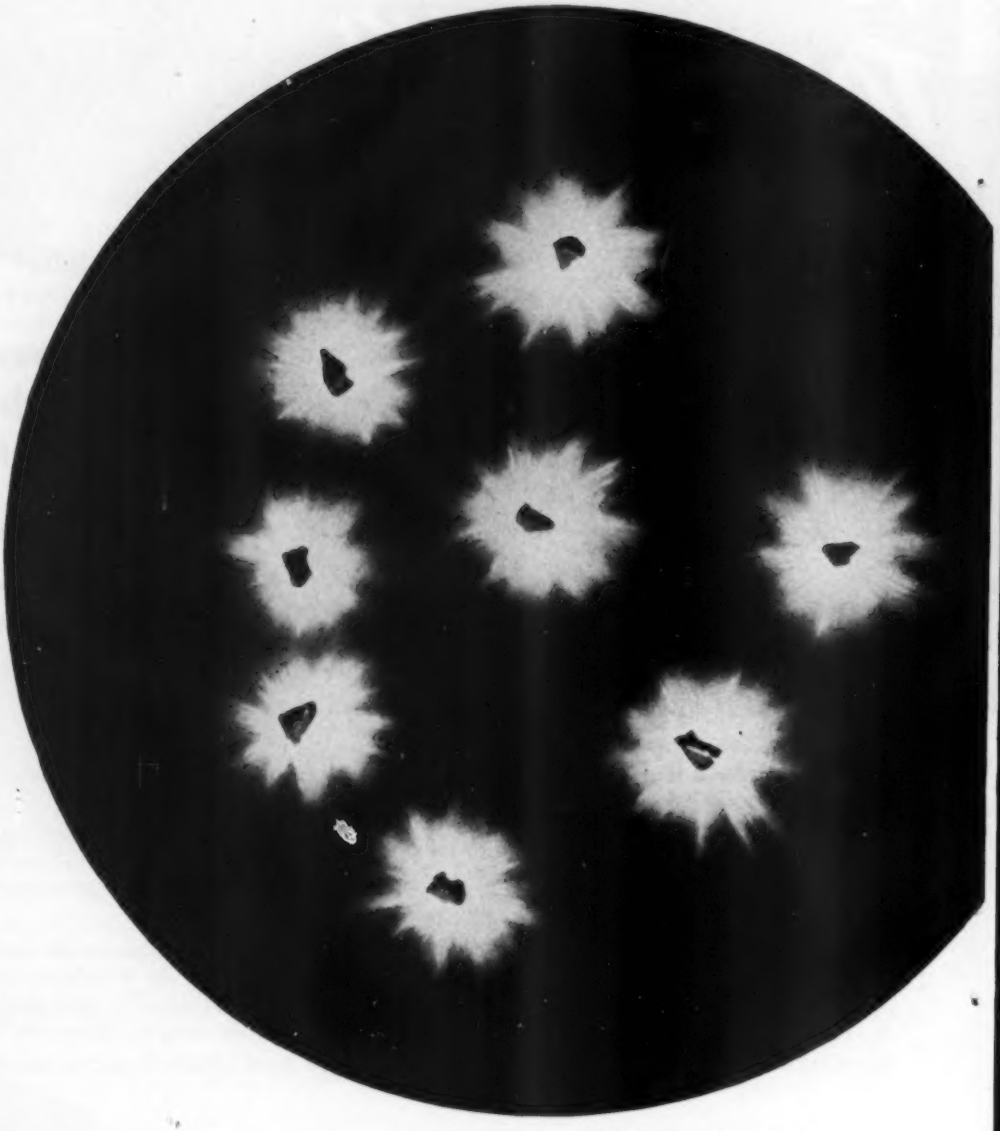
You can plan to have this type of service and machine life too. If you have a *real* Rock Shovel you never have to worry about output in any digging. Talk it over with our sales agent or a Northwest Man.

NORTHWEST ENGINEERING COMPANY • 135 South LaSalle Street, Chicago 3, Illinois

NORTHWEST

Convertible for any Mining Material Handling or Excavation Problem

THESE "STARS"



This drawing represents a greatly magnified drop of Delvac Oil taken from the crankcase of a test engine containing a radio-active piston ring. The white "stars" are radio-active metal particles worn off the ring during a test run.

With Delvac Oil, there are comparatively few particles. With ordinary heavy-duty motor oils, the particles are many times more numerous. This proves that today's Delvac Oils with super-detergent formula give vastly greater protection against low-temperature corrosive wear.

TELL A VITAL STORY

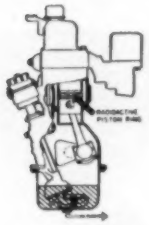
New Radio-Active Tracer Tests Prove Delvac Oils' New Super-Detergent Formula Cuts Engine Wear–Lowers Oil Consumption

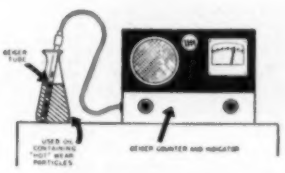
FROM TESTS with radio-active tracers taken from the atomic pile at Oak Ridge comes the proof.

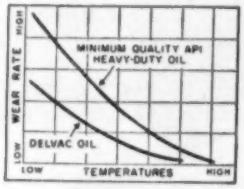
Delvac Oils with new super-detergent formula sharply reduce wear during low-temperature operation *when most wear occurs* ... during starts and warm-ups and stop-go operation. Less engine wear means longer engine life, fewer overhauls – lower fuel and oil consumption, too!

For additional protection, Delvac Oils also provide other outstanding performance qualities. They resist oxidation and foaming, guard against corrosion, minimize formation of varnish, lacquer, sludge. They help your engines develop full power – help keep maintenance costs at rock bottom!

Call your Socony-Vacuum representative today for these improved, super-detergent Delvac Oils. They are recommended or approved by 125 of the country's leading engine and equipment builders.







Here's how the sensational wear-fighting properties of today's super-detergent Delvac Oils are proved:

Radio-active piston rings are installed in test engines. "Hot" metal particles, worn from the rings, are picked up by the motor oil. Radio-activity of this oil, measured by Geiger counter, indicates *with amazing accuracy* amount of wear which occurs.

• • •

Chart above graphically shows result – an almost unbelievable reduction in wear!

DELVAC OILS

Correct Lubrication for Contractors

SOCONY-VACUUM

THE FLYING RED HORSE COMPANIES: SOCONY-VACUUM OIL COMPANY, INC.
MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION

Look To **LIPPMANN** *For Complete*

Crushing, Washing, Screening Machinery

For 32 years Lippmann engineers have specialized in the design and construction of machinery and plants to produce crushed stone, sand and gravel. During that time they have earned the confidence of the industry to the extent that Lippmann equipment is the choice of many leading aggregate producers and contractors.

You, too, can look to Lippmann with confidence for the finest of equipment to meet your needs — for individual crushers, feeders, screens, washers or conveyors — or for complete plants. Lippmann Engineering Works, 4609 West Mitchell Street, Milwaukee 14, Wisconsin, U. S. A.

JAW CRUSHERS

Sizes up to 36 x 48 inches (the largest overhead eccentric jaw crusher made). Features 25% more crushing area, non-choking construction, maximum output, minimum power use and maintenance.

GYRATORY CRUSHERS

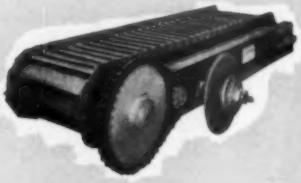
Revolutionary anti-friction gyratory operation with parallel shaft rotation results in lighter weight, less power consumption, reduced maintenance and controlled product size. Sizes 23 to 72 inches.

ROLL CRUSHERS

Offer real economy in secondary crushing. Exact product size control; tapered roller bearings; a variety of shell face patterns available; easily replaceable wear plates reduce maintenance. Sizes up to 72" x 24" rolls.

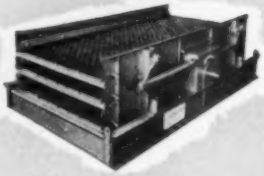
CONVEYORS

Complete line of both portable and stationary conveyors. Lippmann Life-Sealed ball bearing conveyor idlers are outstanding for lower first cost and maintenance. Ball bearings are lubricated for life.



APRON FEEDERS

LIPPMANN makes apron feeders and plate feeders to meet all feeding requirements. Every design has been thoroughly proven by rigorous field service and built for long wear and low power requirements.



SCREENS

Vibrating screen pictured is positive eccentric type with equally distributed vibration for maximum capacity. Vibration contained in screen body entirely. All sizes, single and multi-deck.

PORTABLE PLANTS

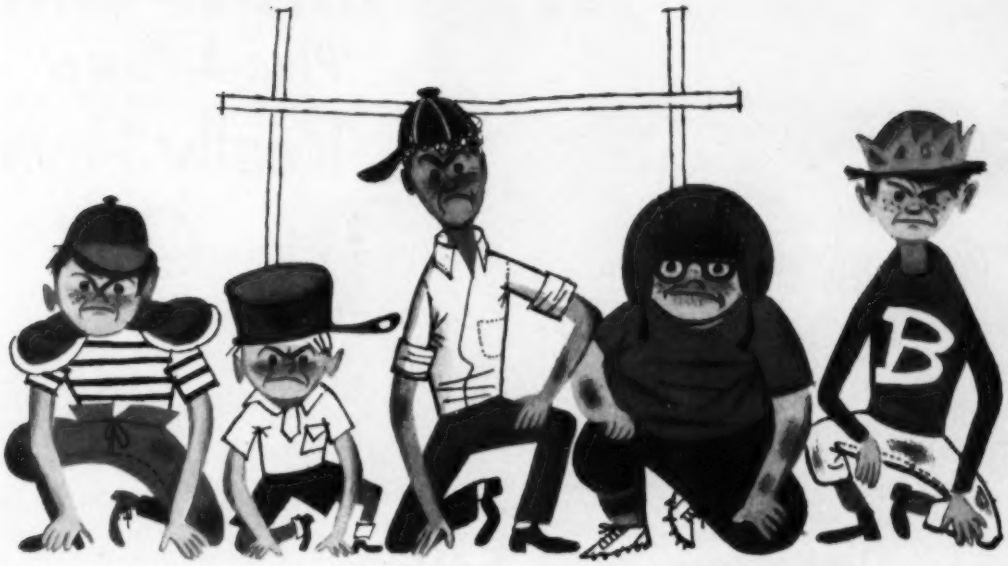
Portable washing plants, as pictured, combine scrubber, vibrating screen, sand drag, conveyors. Capacities up to 120 cu. yd. per hour. Lippmann also makes trailer and self-propelled crushing plants including screening and loading elements.

PULVERIZERS

An unusual design of hammer-type crusher with unmatched records of capacity, product size and quality control, low first-cost and ease of maintenance. Manganese hammers, forged hammer arms and other outstanding design features. Sizes up to 40" x 36".

LEW **LIPPMANN**

CRUSHERS FEEDERS SCREENS CONVEYORS ELEVATORS HOPPERS BINS



all types...

Many builders and users of mechanical equipment have found the answer to their anti-friction bearing needs at Torrington which makes all basic types.

Torrington spherical roller, tapered roller, straight roller, needle and ball bearings are available in a wide variety of sizes. And when a standard type "won't do", Torrington designs special bearings tailored to the job.

So whether you need an unbiased recommendation for the standard bearing best suited to your application or a special bearing, Torrington is always ready to serve you. Call the office nearest you.

THE TORRINGTON COMPANY

Torrington, Conn. South Bend 21, Ind.

District Offices and Distributors in Principal Cities of United States and Canada

TORRINGTON BEARINGS

Spherical Roller • Tapered Roller • Straight Roller • Needle • Ball • Needle Rollers

★ HERE IS WHERE STERLING-WHITE *Plan-A-Power* Really Pays Off!

★ **HERE**—Two full shifts per day, lots of heavy work under the shovel... Sterling-White flexibility and ease of maneuvering are mighty important. Steep grades handled easily with full load. Plan-A-Power does it!

★ **HERE**—Sterling-White can take it . . . day after day! Super-Traction differential means no bogging down on toughest road and load conditions.

WANT to step up schedules? Cut maintenance cost? Substantially reduce tire wear?

You can do it with Sterling-White Plan-A-Power!

Based on the cost records of leaders in construction industries, Sterling-White pays off every day . . . for more years. Engineered to exact work conditions, Sterlings can take it . . . can cut costs . . . can do more work.

Ask your Sterling-White Representative to provide facts about Sterling-White economy tailored right to your operations.

Sterling White

See your nearest STERLING-WHITE Representative

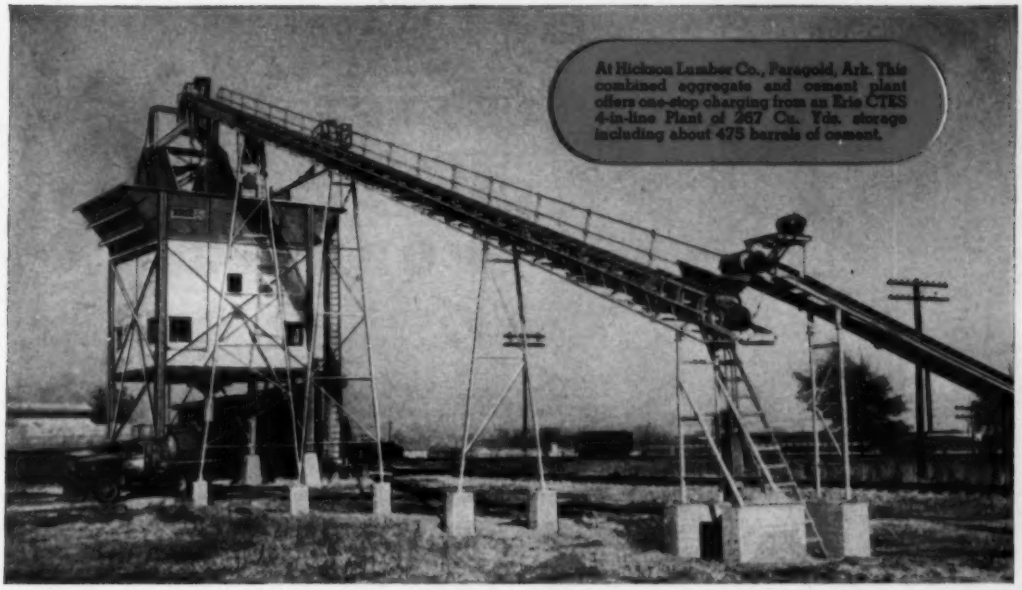
STERLING DIVISION

THE WHITE MOTOR COMPANY · ***Milwaukee 1, Wisconsin***

The White Motor Company of Canada Limited—Montreal
Export Department—Cleveland 1, Ohio, U. S. A.

Get More Work Done with Sterling-White Plan-A-Power

No more poor traction! Wheel spinning and slippage are reduced to a minimum with Sterling-White Plan-A-Power. Job-engineered super-traction differential divides power to each rear wheel exactly as road and load conditions demand. Sterling-Whites have the rugged design and plenty of power to MOVE and to LAST!



At Hickson Lumber Co., Paragoid, Ark. This combined aggregate and cement plant offers one-stop charging from an Erie CTES 4-in-line Plant of 267 Cu. Yds. storage including about 475 barrels of cement.

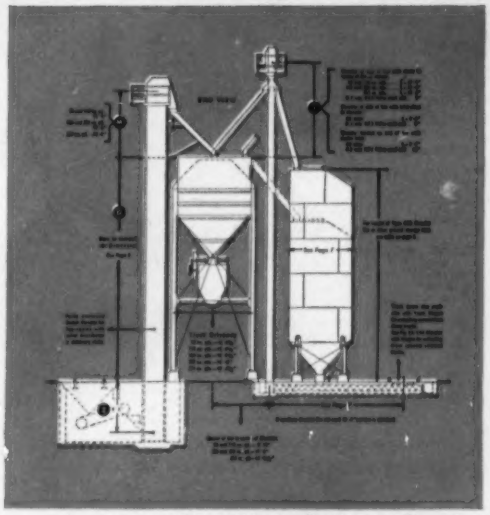
ERIE C-S SERIES *Combination* BINS

Offer 10 Compartment Arrangements

These Combination Aggregate and Cement Bins are of the knock-down semi-portable type. We build them in standard sizes with either 3 or 4 compartments in line. To meet special storage conditions we also build C-S Combination bins in 10 different top partition arrangements that provide almost any degree of material classification.

The advantage of having up to 475 barrels of cement alongside aggregates in one bin makes for economy and fast one-stop charging of materials. Auxiliary connected cement storage may be provided by the addition of Ground Storage Bins.

For extra high truck clearance required of large Central Mixing Plants or Concrete Products Plants 11 ft. additional column height, over the standard 20 1/3 feet, is available.

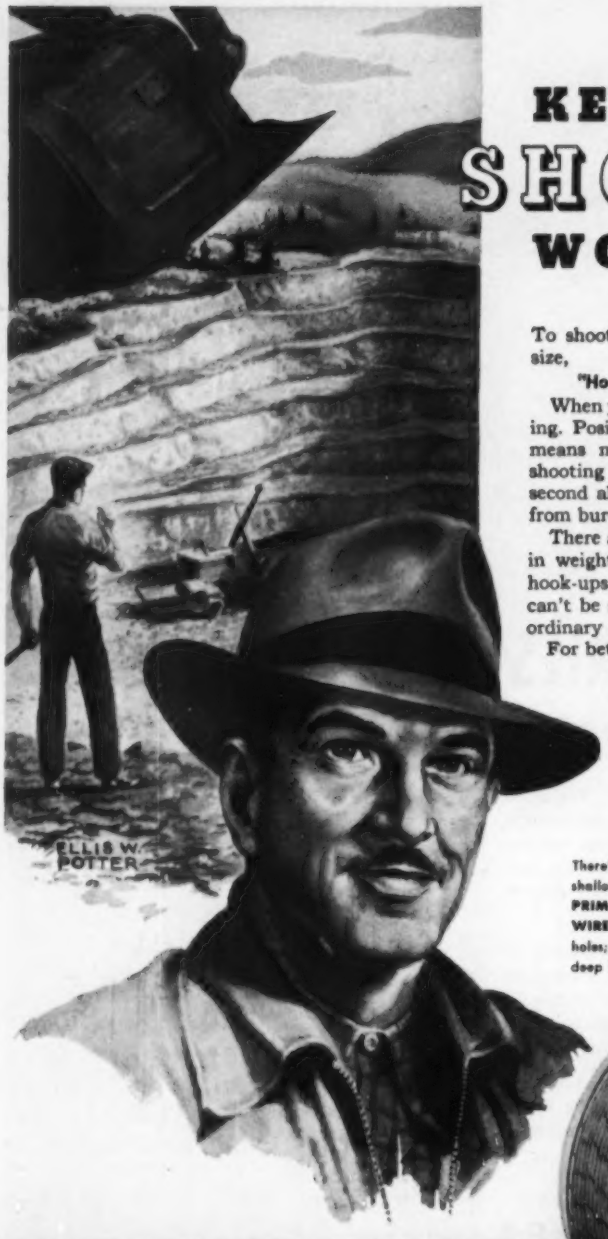


Arrangement of Erie C-S Series Combination Cement and Aggregate Bin with auxiliary Erie Silo-type ground storage of cement interconnected to main plant.

WRITE FOR BULLETIN C-S

ERIE
STEEL CONSTRUCTION COMPANY

629 GEIST ROAD • ERIE, PENNSYLVANIA



KEEPS SHOVELS WORKING

To shoot that heavy overburden down to handling size,

"Hook Up and Detonate with PRIMACORD"

When you use Primacord you get faster, easier loading. Positive firing of every cartridge in every hole means more work from your explosives. Planned shooting detonates the front holes a fraction of a second ahead of those behind, thus giving you relief from burden and better fragmentation.

There are other advantages, too. Primacord is light in weight — saving you time in making trunk line hook-ups and down-the-hole branches. And it's safe — can't be set off by stray currents, friction, sparks or ordinary shocks.

For better digging, use PRIMACORD regularly.

Ask your explosives supplier or write us direct for further facts

THE ENSIGN-BICKFORD COMPANY
SIMSBURY, CONNECTICUT
Also Safety Fuse since 1836

There's a type for every job. **PLAIN PRIMACORD** for shallow holes and surface trunk lines; **REINFORCED PRIMACORD** for deep holes and resistance to abrasion; **WIRE COUNTERED PRIMACORD** for deep, ragged holes; and **PLASTIC REINFORCED PRIMACORD** for deep holes and unusual wet conditions.

Use PRIMACORD®

The PROVED and APPROVED DETONATING FUSE

Do you have a tunnel to Drive?

Other people have successfully driven tunnels in the same kind of rock and under the same conditions you will find when you drive your next tunnel.

Most of the successful tunnel drivers (the ones that finished with their shirts on their backs) have claimed that good loading equipment meant the difference between success and failure. These are the men who hold world's tunneling records for distances, speed and safety — these are the tunnel drivers using Eimco Loading equipment exclusively.

Let us help you plan your tunneling jobs, Eimco Engineers are anxious to assist without obligation on your part.

EIMCO A396

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES - SALT LAKE CITY 10, UTAH, U. S. A.

BRANCH SALES AND SERVICE OFFICES

NEW YORK 51-52 SOUTH STREET • CHICAGO 3319 SOUTH WALLACE STREET
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EL PASO, TEXAS, MILLS BUILDING • BERKELEY, CALIF. 637 CEDAR STREET
KELLOGG, IDAHO 107 DIVISION ST. • LONDON W. 1, ENGLAND, 190 PICCADILLY

IN FRANCE: SOCIETE EIMCO, PARIS, FRANCE
IN ENGLAND: EIMCO (GREAT BRITAIN) LTD., LEEDS 12, ENGLAND
IN ITALY: EIMCO ITALIA, S.P.A., MILAN, ITALY

A VERSATILE GRINDING SYSTEM

RAYMOND HIGH SIDE ROLLER MILL

PNEUMATIC FEED CONTROL

. . . is a "production booster" that keeps the mill operating at peak capacity . . . prevents underfeeding and overfeeding . . . and maintains a maximum "load" on the mill.

WHIZZER SEPARATOR

is built integrally with the mill and is driven independently. One simple adjustment controls the fineness over the full range of classification.

AUTOMATIC FEEDER

Used on all Raymond Roller Mills. Speed of feed roll automatically controlled from the mill system.

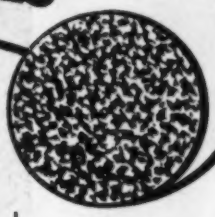
RAYMOND ROLLER MILLS also built in Low Side Type for coarser grinding operations.

For Complete Details, write for RAYMOND Catalog No. 69

COMBUSTION

RAYMOND PULVERIZER DIVISION

for NON-METALLIC MINERALS



From a few Tons to 30 Tons or More per Hour

Combining all Operations in ONE UNIT

THE Raymond Roller Mill has become standard in many different industries because of its ability to handle a great variety of products, also its wide range of fineness control from 20 mesh to 400 mesh materials, and its low ratio of power consumption to tonnage output.

The leadership of Raymond Roller Mills has been maintained year after year by a continuous record of economical production under all conditions of service.

Illustrated is the High Side Roller Mill equipped with Whizzer Separator which gives the utmost in flexibility of adjustment for varying fineness of finished material. Merely by changing the speed of the revolving whizzer the fineness is quickly increased or decreased. Not only does the whizzer permit positive fineness control over a wide range but, at the same time, it insures particle size uniformity along the entire range.

Whatever your grinding problem may be, RAYMOND Equipment offers you an economy-proved method of production. Write for further detailed information.

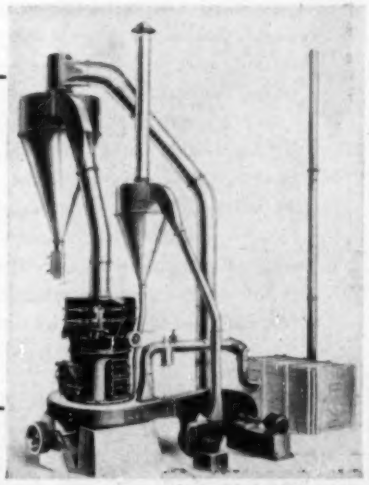
Partial List of PRODUCTS pulverized on RAYMOND ROLLER MILLS

LIMESTONE
GYPSUM
KAOLIN
CLAYS
BENTONITE
DOLOMITE
PHOSPHATE ROCK
FULLERS EARTH
BARYTES
BAUXITE
MAGNESITE
MARBLE
SULPHUR
TALC

If you have any special problem in fine grinding, write for further information.

Equipped with Flash Drying Accessories

The Roller Mill with Flash Drying System can handle many materials, containing as high as 10% to 15% moisture — reducing the moisture content while pulverizing and producing a fine, dry free-flowing product.



SINCE 1887

ENGINEERING-SUPERHEATER, INC.

1321 NORTH BRANCH ST. **CHICAGO 22, ILLINOIS**

Sales Offices in Principal Cities

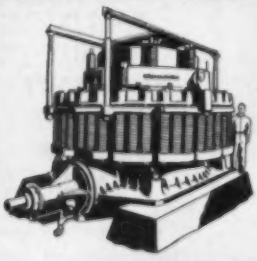
Photo from DeBeers Consolidated Mines, Ltd.

from this BLUE GROUND . . .

come the CROWN JEWELS of Industry

DIAMONDS have been the supreme jewels for centuries—yet the real value of the diamond today is found in its industrial applications, where fully 75% of the diamonds mined are used. In South Africa, the largest diamond producing region in the world, these *crown jewels of industry* are found deep in the earth, in volcanic rock known as *blue ground . . . and for every ton of blue ground mined, less than 1/8th carat is recovered.*

Of prime importance to the major diamond mines of South Africa is a dependable method of crushing the blue ground to the required fineness without destroying the diamond crystals, yet maintaining a minimum cost per ton produced. This important combination is found in the *"SYMONS"* Cone Crusher . . . and extensive installations of these crushers, as well as *"SYMONS"* Vibrating Screens, in the world's diamond mines testify to their ability to maintain, year after year, *continuous high capacity production with uninterrupted, trouble-free service.*



● "SYMONS" Cone
chines that revolution
. . . are built in Ste
and intermediate type
heads from 22 inche
—in capacities fro

C552

NORDBERG MFG. CO., Milwaukee, Wisconsin

"SYMONS" . . . A NORDBERG TRADE MARK KNOWN THROUGHOUT THE WORLD

NORDBERG

MACHINERY FOR PROCESSING ORES and INDUSTRIAL MINERALS

NEW YORK • SAN FRANCISCO • SPOKANE • WASHINGTON • TORONTO
MEXICO, D. F. • LONDON • PARIS • JOHANNESBURG

"SYMONS" Primary Crushers

Grinding Mills

Mine Hoists

"SYMONS" Vibrating Bar Grizzlies and Screens

Diesel Engines

Here's the score:

"GUTS" is the way the owner sums up the record of the hard-driving "Caterpillar" Diesel D13000 Engine which powers this Bucyrus-Erie Shovel in a rock pit. Charles Guam, superintendent of Sam Braen Sons Co., Inc., Wyckoff, N. J., declares:

"This 'Cat' Engine works in hard rock in summer heat, winter cold and dust. In almost 3 years there has been no down-time. We have spent less than $1 on it in more than 4,000 hours. This D13000 Diesel has guts."

Little wonder that Sam Braen Sons is sold on other "Caterpillar" equipment. While the D13000 is working faultlessly in one pit, a "Cat" Diesel D318 Engine is the steady heart of a Lorain Shovel in another pit. The Lorain loads dirt for transfer to a former gravel pit where a "Caterpillar" D8 Tractor and 'Dozer are leveling land for building purposes.

High production by "Caterpillar" Diesels stems from unceasing devotion to small, important details. For instance, injection pumps and valves are protected from harmful materials in the fuel by filters. These fuel filters are made of high-quality, absorbent material wound upon an inner sleeve of the finest laboratory filter paper. Small details make the big difference.

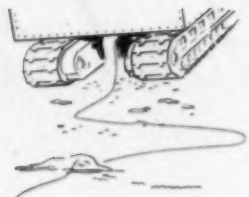
Specify "Cat" Diesels in the equipment you buy. Let your "Caterpillar" Dealer help you select the right size engine for repowering your present equipment.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT



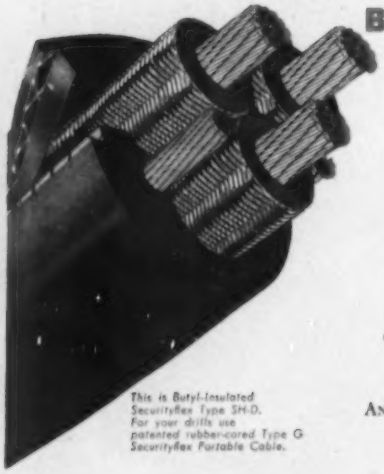
proved in **our** mines

for better performance in **yours**

We—at Anaconda—are miners ourselves. We know shovel cable because we use lots of it. Safety and uninterrupted flow of power are important in any mining operation. In both respects we know Securityflex Type SH-D has a good record.*

for longer "failure-free" service on big shovels, insist on

Butyl-Insulated Securityflex above 2kv



This is Butyl-Insulated Securityflex Type SH-D. For your drills use patented rubber-cored Type G Securityflex Portable Cable.

ANACONDA Securityflex Cable is safer, less liable to "blow-out," easier to work with. Here's why:

BUTYL INSULATION. This accounts for improved resistance to moisture, ozone, heat (up to 80C).

NEOPRENE JACKET. Here is real flexibility and great strength engineered for this specific tough use. Handles well, has high impact resistance and lasts longer in all weather.

RUBBER-CORED GROUND WIRES. This safety-first feature prevents kinking, gives greater shield contact, and cushions the wires.

COPPER-COTTON SHIELD. Special new-type shield makes splicing easier, faster without damage to insulation. Eliminates chafing failures.

Ask your Anaconda Sales Office or Distributor to show you this and other ANACONDA portable mining cables. Learn how continuous improvements have made these famous cables better . . . for safety . . . and for increased production at less cost in your mine. Anaconda Wire & Cable Company, 25 Broadway, New York 4, N. Y.

*Trademark B2960

the right cable for the job **ANACONDA** **wire and cable**

the Percheron of Packaging

...CHASE MULTIWALL BAGS

Chase Multiwalls are "Built to TAKE it!" They're the work horse of packaging! They are easy to handle, stack, and palletize . . . easy to open and to empty. Furthermore, Chase Multiwall Bags are economical and sharply reproduce your brand name. Your Chase salesman is a thoroughly informed packaging expert. Check with him on Chase Multiwalls for the better packaging of your product.

Percheron Horses are famous throughout Europe for great strength and symmetry of line.

CHASE 1847 BAGS

Multiwall Bags for ROCK PRODUCTS

for Better Bags...Better Buy Chase!

CHASE BAG CO. GENERAL SALES OFFICES: 309 W. JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE
PITTSBURGH • KANSAS CITY • LOS ANGELES • MINNEAPOLIS • GOSHEN, IND. • PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY
OKLAHOMA CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • WORCESTER, MASS. • CROSSETT, ARK. • SAN FRANCISCO

"172 to 181 tons per hour average

That's why I like Cedarapids"
says, C. C. LINCK
Beaver Dam, Wisconsin

CLARENCE C. LINCK
ROAD CONTRACTOR

Agricultural Lime | Washed Sand and Gravel | Road Gravel

Phone 5066 | BEAVER DAM, WISCONSIN | Job Address Beaver Dam, Wis.

February 9, 1952

Mr. Kenneth Lindsay
Vice President - Sales Manager
Iowa Manufacturing Company
Cedar Rapids, Iowa

Dear Ken:

I know you are always interested in the production of your equipment, so I want to tell you what I'm getting from one of our Junior Tandems.

On Highway 30 in Waukesha County, Wisconsin, I produced 93,098 tons of minus 1" material in 541 hours for an average of 172 tons per hour. On Highway 57 in Calumet County, I produced 61,992 tons of minus 1" in 341 hours for an average of 181.8 tons per hour. All finished materials were produced without any primary breaker, and we were operating in gravel pits that contained 50% stone.

These quantities were originally figured in cubic yards, but I've transposed the figures to tons, using 3000 lbs. per cubic yard as a base figure. This may seem too high as weight per yard, but it actually run more than that. The quantities listed above are recorded with the State Highway Department.

I guess it's obvious why I like Cedarapids equipment! The main reason is the Horizontal Vibrating Screen on my Junior Tandems which are consistently producing from 20 to 25% more yards per hour than other plants I've used. These screens give me absolute accuracy to meet the strictest specifications. Other definite advantages of the Cedarapids plants are the V-Belt drives, and the fact that bearings from various parts of the plant are interchangeable throughout the plant.

Yours truly,

C. C. Linck

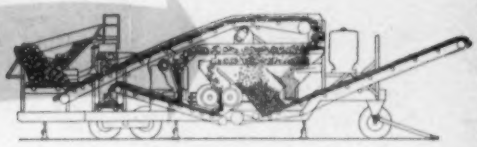
C. C. Linck

CCL:hm

THE IOWA LINE *of Material Handling Equipment Includes:* ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • PORTABLE POWER CONVEYORS • PORTABLE AND STATIONARY STONE, GRAVEL AND SAND PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • DRIERS • DUST COLLECTORS HAMMERMILLS • WASHING PLANTS • VIBRATING SOIL COMPACTION UNITS • DOUBLE IMPELLER IMPACT BREAKERS

in gravel pits containing 50% stone

"IT'S THE HORIZONTAL SCREEN THAT DOES THE TRICK"



OF course, the entire Junior Tandem plant is built for high capacity, but it's the Cedarapids Horizontal Screen, and the way it's used, that accounts for C. C. Linck consistently getting 20 to 25% more yards per hour from his Junior Tandems than from other plants he's used.

ONLY CEDARAPIDS PORTABLE PLANTS HAVE HORIZONTAL SCREENS!

The vibrating motion of the screen tosses the material upward and forward. As it falls, it strikes the screen cloth at right angles. A greater percentage of the material passes through each opening, because *the entire opening is utilized.* All the material that *should* pass through the screen *goes through* giving 25 to 30% more efficiency per square foot than other types.

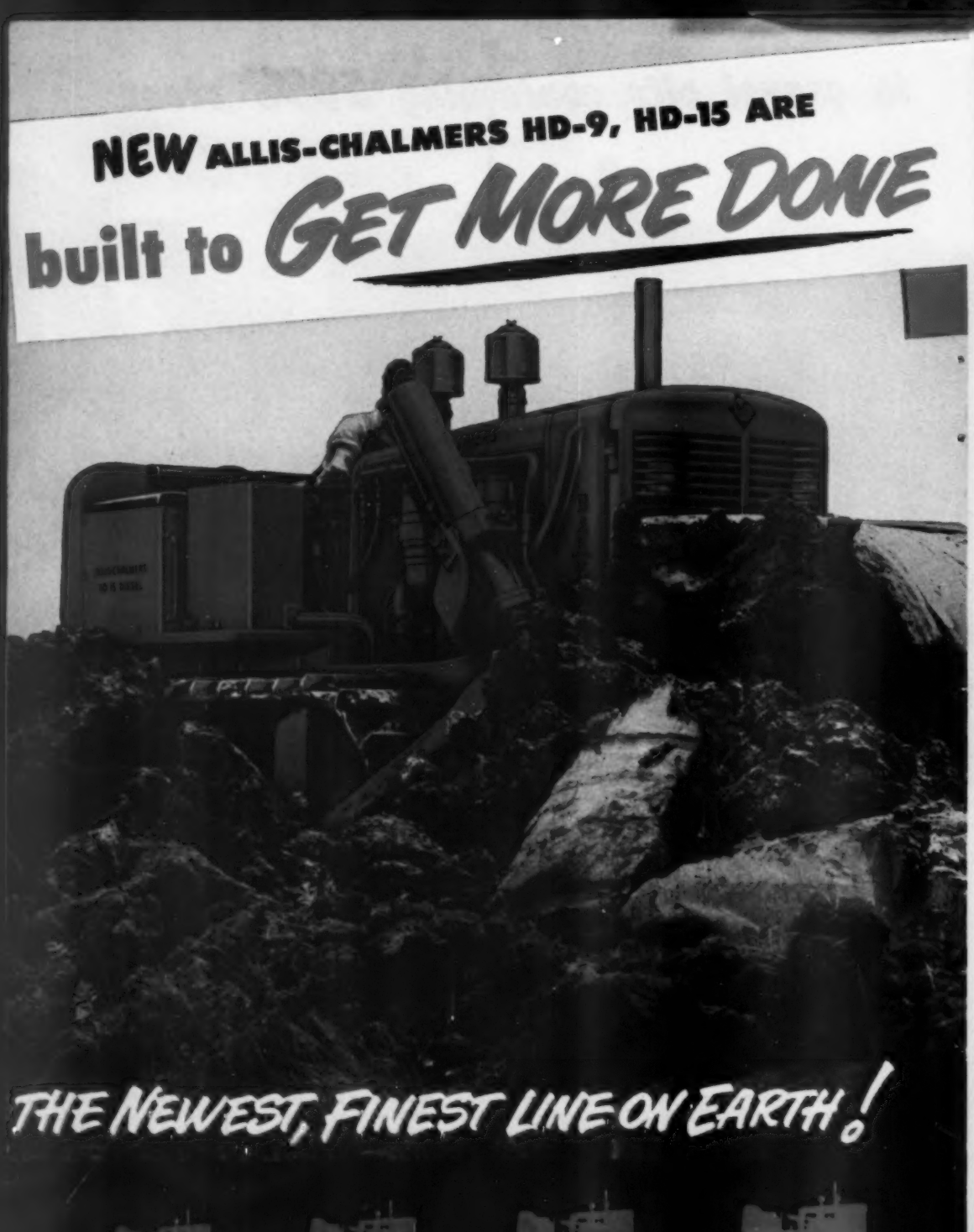
The top deck feeding principle used on Cedarapids plants increases capacity, too, by eliminating any possible choke point and balancing the oversize pit run material between the jaw crusher and the roll crusher. By making an immediate split of the material between the proper crushers, the circulating load on crushers, belts and screens is reduced, and the output of the plant isn't limited by screen capacity or the capacity of the jaw crushers.

C. C. Linck owns two Cedarapids Junior Tandems, a Cedarapids 2236 Portable Primary and a Cedarapids Bin and Screening Unit. To put *your* operations on a big production basis like C. C. Linck, ask your Cedarapids distributor to explain all the features that keep Linck sold on Cedarapids equipment.

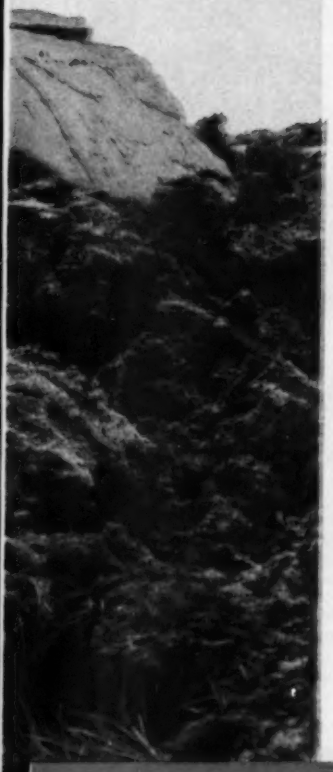
Cedarapids
Built by IOWA

headquarters for
COST REDUCING EQUIPMENT

IOWA MANUFACTURING COMPANY • Cedar Rapids, Iowa, U.S.A.


NEW ALLIS-CHALMERS HD-9, HD-15 ARE
built to GET MORE DONE
THE NEWEST, FINEST LINE ON EARTH!
HD-5
40 drawbar hp.
11,250 lb.
HD-9
72 drawbar hp.
18,800 lb.
HD-15
109 drawbar hp.
27,850 lb.
HD-20
Hydraulic Torque
Converter Drive
175 net engine hp.
41,000 lb.

built to TAKE IT LONGER



Unequalled Lugability

The HD-9 and HD-15 build up greater drawbar pull faster . . . hold it longer than ever thought possible in gear transmission tractors.

For example, when tough going has pulled travel speed down 40 percent, these tractors will have increased their drawbar pull almost 20 percent over rated pull. They will lug down almost 45 percent from rated travel speed before drawbar pull even starts to fall off.

To take full advantage of this important GM 2-cycle diesel engine characteristic, the HD-9 and HD-15 have longer truck frames, lower idlers and sprockets. That means more track on the ground . . . better stability . . . sure-footed traction . . . unequalled *lugability*.

Extra Long Life

Here are a few of the many reasons why these newest, finest tractors are *built to take it*.

- **All-Steel Welded Construction**
- **More Power with Bigger Engines — Longer Engine Life**
- **More Weight, Greater Strength**
- **Extra Heavy Main Frames — No Extra Reinforcement Needed for Front-Mounted Equipment**
- **Long-Lasting, Large Diameter Clutches**
- **Double Reduction, Straddle-Mounted Final Drive Gears with Live Sprocket Shafts and Caged Bearings**
- **Positive Operating Track Release — Works in Oil**
- **All New, Specially Designed Track Assembly**
- **Positive-Seal Truck Wheels, Support Rollers and Idlers — Mounted on Tapered Roller Bearings, 1,000-Hour Lubrication!**

Your Allis-Chalmers dealer will be glad to explain all of these advantages. See him or phone him now.

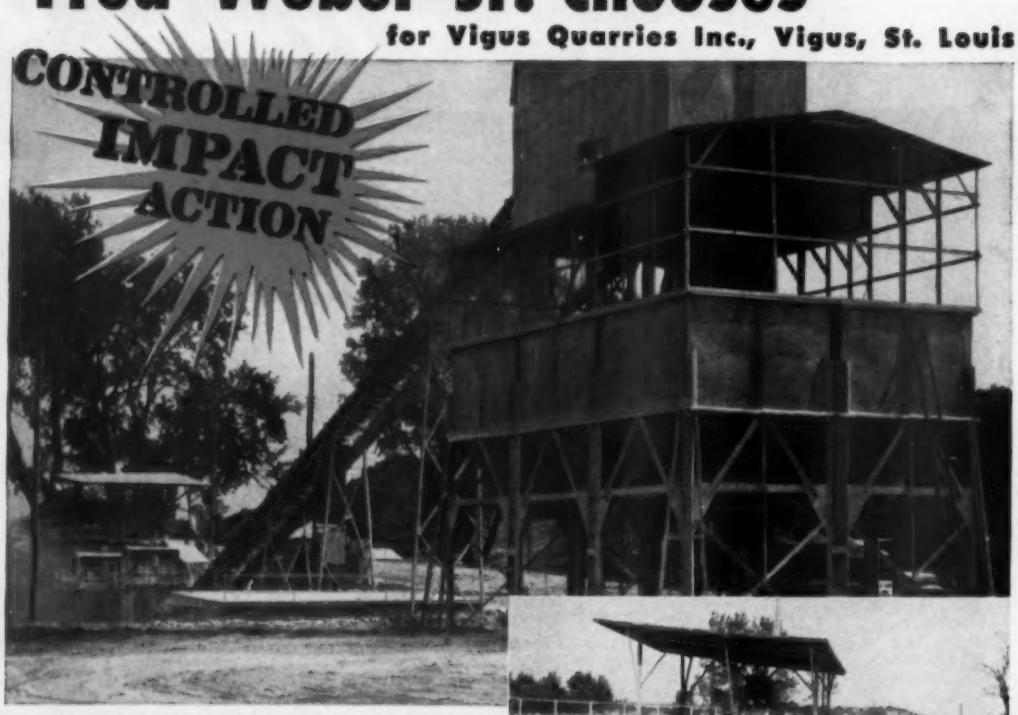
DESIGNED FOR YOUR JOB • BUILT TO "TAKE IT" • EASY TO OPERATE • EASY TO SERVICE

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Fred Weber Jr. chooses

for Vigus Quarries Inc., Vigus, St. Louis



3240 PMCO Impact Master with 36" x 12' apron feeder, 30" discharge conveyor, Murphy diesel power. Output fed to vibrating screen over 30" plant conveyor.

TOP QUALITY AGGREGATE IN ONE PASS THROUGH PMCO IMPACT MASTER

Fred Weber Jr. has proof of PMCO Impact Master performance. He's producing 135,000 tons of top quality concrete aggregates to meet CAA and City of St. Louis specifications for airport runways.

Feeding with three trucks, Vigus Quarries Inc. are averaging 175 tph of crushed aggregates. That's 150 tph of specification material with 40% of 2½" down to 1¼", and 60% of 1¼" down to ⅛"; and 25 tph of base rock and aglime. Mr. Weber is enthusiastic about the performance. He says, "We've fed the Impact Master peak loads with additional trucks and we know it has the capacity to turn out 250-260 tph."

Top capacity with greater control over finished product size . . . that's what Controlled Impact Action gives you in the PMCO Impact Master. Its high ratio of reduction eliminates secondary crushers and auxiliary equipment and lets you step into big volume production with minimum plant investment. PMCO Impact Masters have capacities up to 500 tph. Write today for profit-making details on the size that meets your requirements.

Manufactured, sold and serviced by Impact Master, Division, Universal Engineering Corp., 625 C Avenue N. W., Cedar Rapids, Iowa.

UNIVERSAL ENGINEERING CORPORATION Division of PETTIBONE MULLIKEN CORPORATION

625 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 West Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

FARRELL-CHEEK CRANE WHEELS

Serve Four to Eight Times Longer!

Reports from users of Farrell-Cheek pressure-cast steel crane wheels say they get from four to eight times longer service than with other types of wheels. You can have the same performance on your cranes. We can quickly give you the reasons for using F-C wheels.

F-C wheels stand up to continuous hard use because they are made with the finest available materials in a completely modern plant. Farrell's famous steel alloy "85" offers a superb combination of physical properties—high yield strength, toughness, hardness, and high resistance to wear and abrasion. Another special alloy, F-C Hard Edge, protects critical surfaces against wear. Also, F-C wheels have been designed and tested to withstand both static and impact loads. The records of hundreds of installations show they perform even beyond the high standard indicated by their fine materials, and expert design and manufacture.

F-"85"

F-"85" is a special purpose cast steel which can be heat treated through selective processing. Treads and flanges are toughened and hardened for maximum resistance to shock and abrasive wear.

HARD EDGE

Hard Edge tests from 500 to 650 Brinell, is used on treads and flanges in a depth ranging from 1/8" to 3/16", depending on size of wheel. It is backed up with a softer steel alloy with a Brinell of from 285 to 315.

Either standard or special designs can be furnished. You can save yourself the cost of frequent wheel replacements by starting now to use Farrell-Cheek crane wheels. Write today for detailed information.

FARRELL-CHEEK STEEL CO.

MANUFACTURERS OF HIGHEST QUALITY ELECTRIC FURNACE CARBON AND ALLOY STEEL CASTINGS

FARRELL'S CARBON STEEL CASTINGS
FARRELL'S HARD EDGE STEEL CASTINGS
FARRELL'S "85" STEEL CASTINGS

RAILROAD CASTINGS
Locomotive and Car R. R. Specialty Castings.

ELEVATOR, CONVEYOR PARTS
Sprockets, Traction Wheels, Chains, Buckets, Rollers, Idlers.

BUSHINGS
Carbon and Alloy Steels Machined, Hardened, Ground.

CRANE WHEELS
Overhead, Gantry, Monorail, Ingot Car, Charging Machine.

GEARS AND PINIONS
"True Tooth" Gears and Pinions, Sheaves and Wheels.

SPECIALIZED CASTINGS
Light Section Castings.

STOKER PARTS
Feed Screws, Furnace Tools, Flanged Pipe, etc.

HEAVY HARDWARE
Wire Rope Fittings, Choker Hooks, Bar Benders, Cutters.

YOUR INQUIRY WILL PROMPTLY BRING DETAILED INFORMATION PERTAINING TO ANY OF THE ABOVE FARRELL-CHEEK PRODUCTS

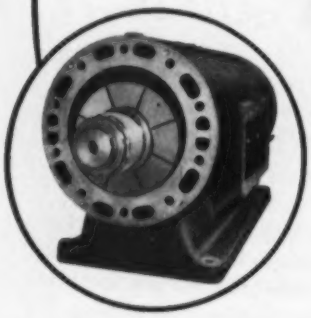
• • • SANDUSKY, OHIO U.S.A.

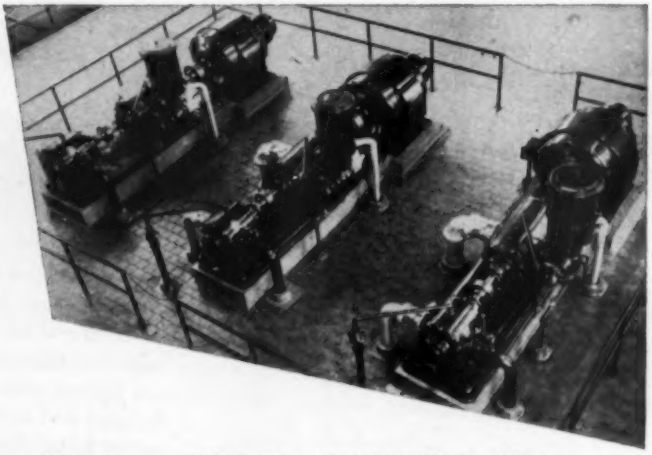
FULLER ROTARY COMPRESSORS

ELIMINATE . . .

Complicated, Moving Parts . . .

for economical operation





Fuller Rotary Compressors are designed and built to be dependable and economical in operation . . . to give a lifetime of new machine service. They have but few moving parts—rotor, bearings, and blades. That means minimum maintenance and infrequent inspection. Because blades automatically compensate for wear, ***full capacity is maintained for the life of the machine.*** Every detail in Fuller compressors is engineered for one purpose . . . to give you the best machine money can buy.

Thousands of Fuller Rotary Compressors are maintaining peak efficiency in plants of every size and description throughout the country. They've *earned* their reputation for complete dependability.

Fuller engineers will be glad to work with you for the proper application of Fuller compressors to your particular requirements. Bulletin C-5 gives you complete information on these quality built compressors. You'll want to study it carefully . . . see how well Fullers fit into your own plans and operations.

Fuller

DRY MATERIALS CONVEYING SYSTEMS AND COOLERS
COMPRESSORS AND VACUUM PUMPS
FEEDERS AND ASSOCIATED EQUIPMENT

FULLER COMPANY, Catasauqua, Pa.
120 So. LaSalle St., Chicago 3
420 Chancery Bldg., San Francisco 4

C-216

*Better gear protection when you need it!**

—GULF E. P. LUBRICANTS

With Gulf E.P. Lubricants you get extra protection against gear troubles when production demands call for a speed-up of equipment or when unusually heavy tooth loads are developed. They are specially compounded to prevent metal-to-metal contact and help protect against pitting, spalling, and excessive wear.

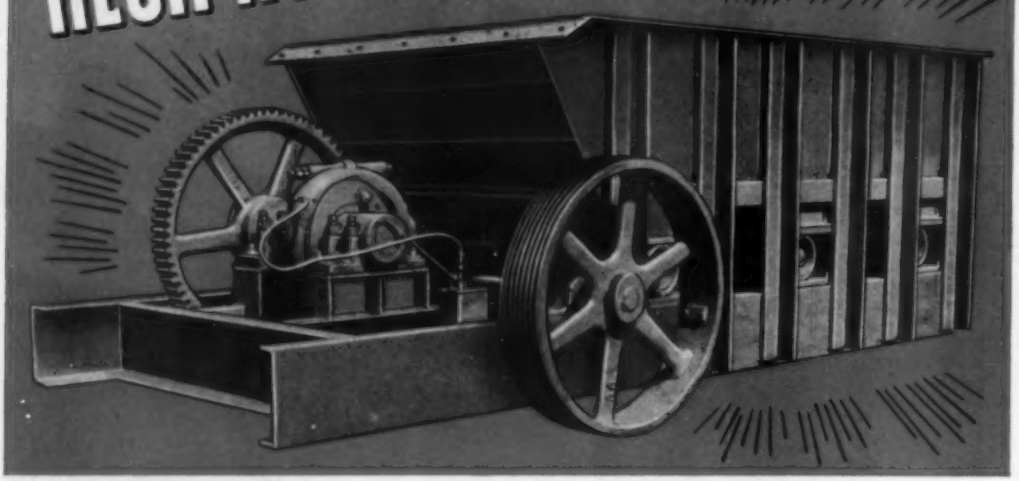
For specific recommendations for your equipment, call in a Gulf Sales Engineer today. Write, wire or phone your nearest Gulf Office.

Gulf Oil Corporation · Gulf Refining Company
Pittsburgh 30, Pa.

GULF INDUSTRIAL LUBRICATION

HANDLE LARGE TONNAGE OF ROCK, ORE OR RAW MATERIALS PER HOUR WITH THE McLANAHAN

RECIPROCATING PLATE FEEDER



Push button-controlled 72" McLanahan Feeder delivering shovel loaded limestone to No. 30 gyratory.

A Maryland company uses two feeders: one to a jaw crusher, the other to a gyratory crusher.

This feeder delivers shovel loaded limestone to a McLanahan single roll Rockmaster crusher in a large midwestern cement plant.

Built to Handle Materials from Sand to Shovel Loaded Rock!

With its reciprocating plate design, this feeder automatically controls the rate of flow of material, and is easily adaptable to the producing capacity of a wide variety of processing equipment. In service, it can be loaded from trucks, cars, hoppers, storage bins . . . and feeds into crushers, washers, conveyors and other machines.

Through the use of this machine production costs are lowered and plant output and efficiency are remarkably increased. In your plant a McLanahan Reciprocating Plate Feeder will save expensive handling costs; eliminate choke-ups, spills, overloads on motors and drives, unnecessary wear and tear on machinery.

WRITE TODAY FOR BULLETIN

Bulletin No. 4812 includes many product and application photos, technical details and specifications.

McLANAHAN & STONE CORPORATION

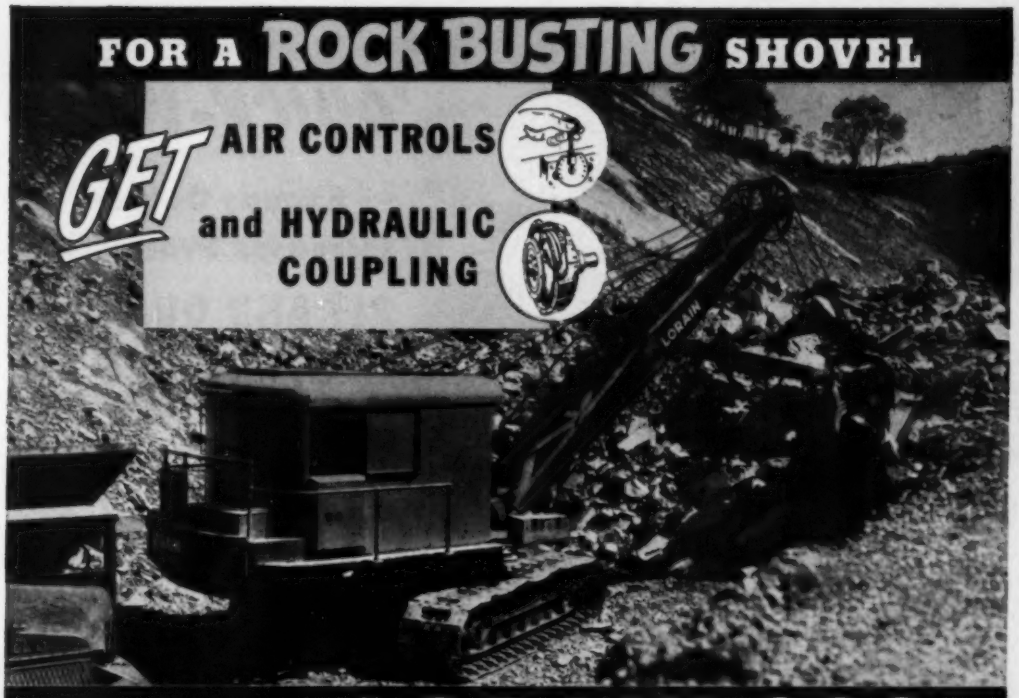
Pit, Mine and Quarry Equipment Headquarters Since 1835

Hollidaysburg, Pennsylvania

Dependable Products: Single and Double Roll—and Jaw Crushers, Crushing Plants, Reciprocating Plate and Apron Feeders, Roll Grizzlies, Conveyors, Elevators, Screens, Scrubbers, Steel Log Washers, Sand Drags, Hoists, Jigs, Dry Pans, Dryers, Scrap Breakers, Pulleys, Gears, Bearings, Sprockets, Sheaves, Rollers, Bin Gates, Elevator Buckets, Gratings, Car Wheels, Furnace and Bronze Castings.

FOR A ROCK BUSTING SHOVEL

GET AIR CONTROLS and HYDRAULIC COUPLING



...IN THE LORAIN 820

HERE'S WHY! Rock busting takes guts in a shovel. It takes plenty of power—plus a design that can stand up against battering-shattering impacts. That's why you need—and should demand—these two, outstanding, important Lorain-820 features.

The finger-tip control of Lorain "Air-Assist" on crowd, retract and travel clutches makes it *easy* on the operator—yet retains the full "feel" of the machine so necessary for fast production in rock. Full air control of tread lock, steering, crowd brake, and jaw clutches lessen operator fatigue, increase yardage. And the final touch—a typically Lorain design bonus—*is that all air controls are equipped for mechanical or manual auxiliary operation.*

There's *immediate* take-over—no lost time.

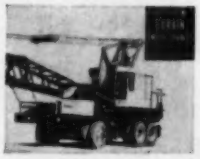
Handle Rock?—why a Lorain 820 is just made for it. Air does the work—and the Lorain Hydraulic (fluid drive) Coupling takes the "shock out of rock" to give the smoothest operation—without operator fatigue—with less strain on the machine. Digging shocks and impacts "melt away"—just can't be transferred into the mechanism and cables. The engine "never-says-die" . . . it hangs on until the most unyielding rock is in the dipper.

There are many more 820 features that make it worth your while to investigate this leader of the 2-yard shovel class. To be sure of a "rock buster" (not a shovel buster), get the Lorain-820 story from your Thew-Lorain Distributor—real soon!

THE THEW SHOVEL CO., LORAIN, OHIO

FREE BOOKLET...

If your work calls for a *big* rubber tire crane, get your copy of the new booklet picturing mighty 45-ton Lorain Moto-Cranes, model MC-824, in action. It's a picture book of the world's largest crane on rubber . . . on big jobs across the country. Be sure to get a copy of this unusual job booklet.



THEW LORAIN®

SHOVELS • CRANES • CLAMSHELLS • DRAGLINES
HOES • MOTO-CRANES

GET THE THEW LORAIN 820 STORY

"QUICK-WAY"

Reg. U.S. Pat. Off.

Speeds Output Increases Profits for PIT AND QUARRY OPERATORS

Whether its moving shot rock, sand, or crushed stone, stripping overburden or charging bins, you'll find the "QUICK-WAY" in a class by itself in the ¼ to ½ yard field.

The "QUICK-WAY" features low center of gravity, works easily over the side, has proper balance for truck operation, gives you easy, fast swinging, plenty of reserve power, rugged all steel construction, numerous parts interchangeable. 4 models, ¼ to ½ cubic yard shovel, clamshell, dragline, backhoe, 3 to 10 ton crane capacity. Truck speeds to and from jobs. Low initial cost. Low maintenance costs. Eight different attachments.

With a "QUICK-WAY" you'll roll up yardage records hour after hour, day after day. Ask your distributor for a free demonstration or mail coupon.

"QUICK-WAY" Model E dragline with 30' boom loading gravel

"QUICK-WAY" truck shovel, loading sand

Clinker is handled from the pit to the storage pile and from the storage pile to grinding circuit with a mobile "QUICK-WAY" crane

"QUICK-WAY"
TRUCK SHOVEL CO.
Denver, Colorado, U.S.A.

MAIL COUPON TODAY

"QUICK-WAY" TRUCK SHOVEL CO.
Dept. 39 • 2401 East 40th Ave. • Denver 1, Colorado

Please send me complete details on "QUICK-WAY" Truck Shovels —four different models from 3 to 10 ton crane capacity.

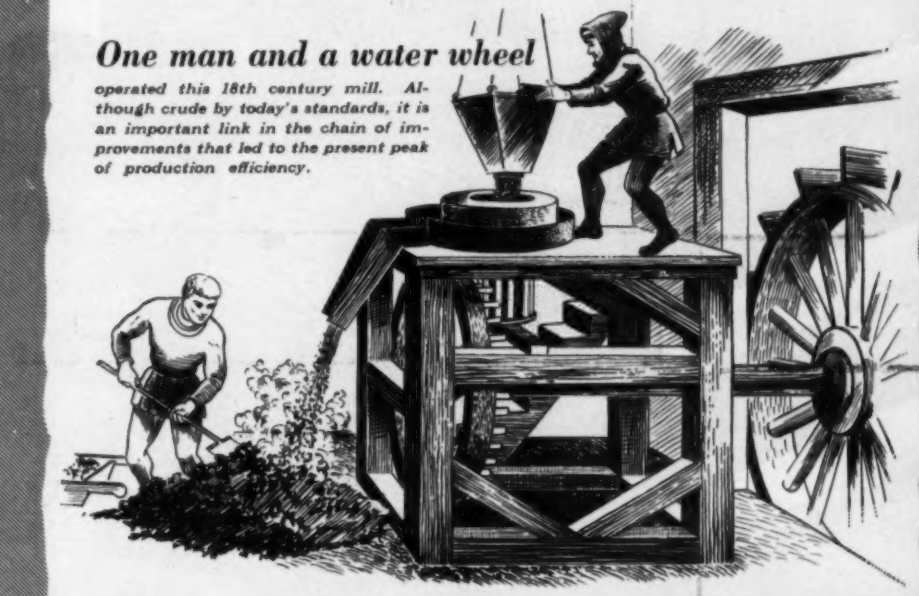
Name _____

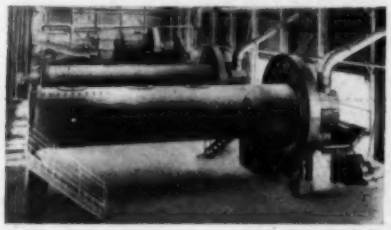
Address _____

City _____ State _____

One man and a water wheel

operated this 18th century mill. Although crude by today's standards, it is an important link in the chain of improvements that led to the present peak of production efficiency.





Traylor builds Ball, Rod, Tube and Compartment Mills in a wide choice of sizes to meet your exact needs.

Through all the centuries of development, however, no single period has shown such great technological advances as has the past 50 years. In that time, Traylor engineers have developed mining and milling machinery that has gained a world-wide reputation for dependable, efficient operation. Today as always, experience supplies the best answers to solve new production problems. Traylor has experience . . . half a century of it.

TRAYLOR ENGINEERING & MANUFACTURING COMPANY
1436 MILL ST., ALLENTOWN, PA.
SALES OFFICES: New York • Chicago • San Francisco
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

OUR GOLDEN ANNIVERSARY YEAR
1902 1952

a **Traylor** *leads to greater profits*

AMSCO MANGANESE STEEL WELDMENTS
ADD NEW LIFE TO WORN EQUIPMENT

Amsco Welding Rods and Electrodes For repair welding of manganese steel shapes to worn equipment, American Manganese Steel Electrodes retain their toughness and give real operating savings.

Amscoating with Amsco Hardfacing Rods increases service life . . . reduces shutdowns.

Contact your Amsco Distributor or write for illustrated catalog WA-77 on Amsco Manganese Steel Weldments and Hardfacing Selector Guide.

Brake Shoe **AMERICAN MANGANESE STEEL DIVISION**
396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Other Plants: New Castle, Del., Denver, Oakland, Cal., Los Angeles, St. Louis. In Canada: Joliette Steel Division, Joliette, Que.
Amsco Welding Products distributed in Canada by Canadian Liquid Air Co., Ltd.

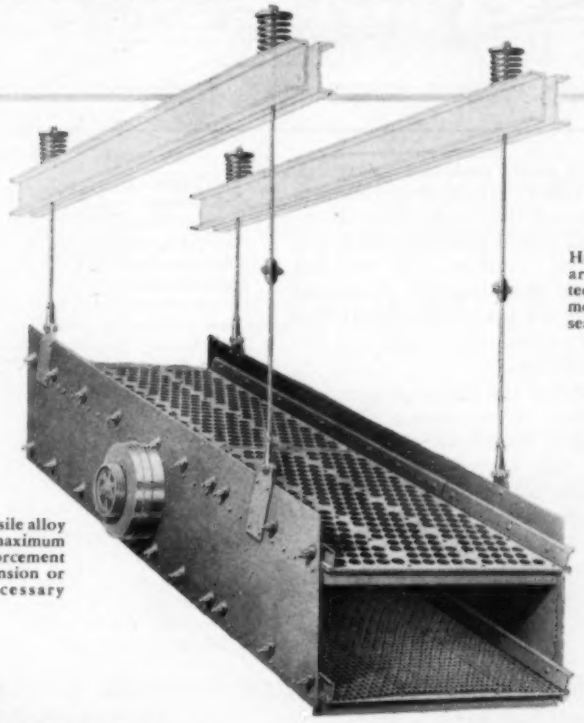
For accurate sizing...
For thorough rinsing...
For rapid dewatering...

the BETTER WAY is with CA

Concentric Action Vibrating Screens

No matter what your screening requirements — Link-Belt CA Vibrating Screens offer top efficiency. Self-aligning vibrator mechanism imparts a smooth, positive, circular motion to every square inch of every deck. Lively tumbling action gives each particle maximum opportunity for sizing, washing or drainage.

There's a standard size CA for almost every job — 3 x 8 to 6 x 16 ft. . . . single, double and triple deck . . . suspension or support mounted. Remember, when it comes to materials handling, profit-wise operators come to Link-Belt.



Two-bearing vibrator has constant bearing loads — no shock from impact of feed.

Unbalanced weights easily adjusted to amplitude of highest efficiency.

Screen box of high tensile alloy steel plate provides maximum strength. Solid reinforcement at vibrator and suspension or support insures necessary rigidity.

Husky roller bearings are completely protected from dust and moisture by labyrinth seals, steel housing.

Centrifugally-actuated, unbalanced weights eliminate excessive vibration in accelerating and decelerating.

Screen cloth is securely tensioned and clamped over rubber supports, can be quickly changed.

WRITE FOR BOOK 2354 for complete layout data

LINK-BELT

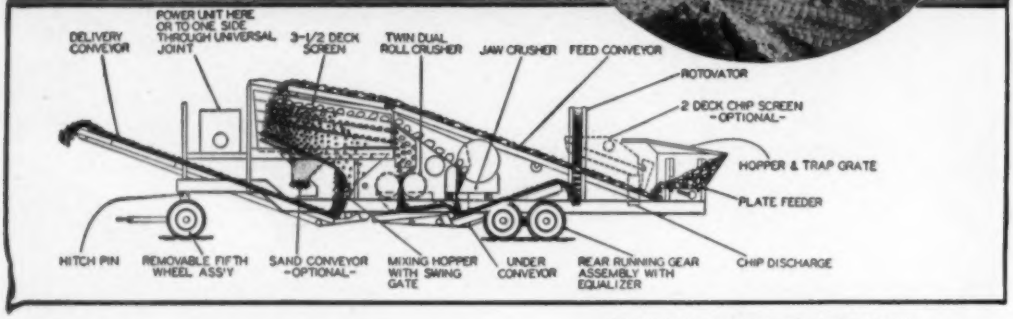
VIBRATING SCREENS

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa.) Offices in Principal cities. 12.425

take a close look

at a PROVED PROFIT-MAKER

the UNIVERSAL TWINDUAL MASTER GRAVEL PLANT



Want top capacity, ready portability, easy set-up, flexible operation? Take a close look at a TwinDual Master and then make your choice. Get the single unit gravel plant that gives you three full stages of reduction with only two crushers. See how the Universal TwinDual Method uses a primary jaw crusher in the first stage, and the TwinDual Roll crusher in the second and third stages.

Compare the Payoff at the discharge conveyor. No two-stage plant of comparable size and weight can equal its performance. You get a more favorable ratio of reduction, less jaw and roll shell wear, less plant maintenance, a better quality uniform gradation finished product at less horse power per ton.

There's a TwinDual Master operating near you. Call in your Universal distributor or write. Ask for Bulletin U516 and 682A.

TWINDUAL MASTER SPECIFICATIONS

Jaw Crusher	1024 RB
Roll Crusher	24" TwinDual
Gyrating Screen	3' x 10' 3½ deck
Chip Screen (optional)	3' x 6' 2 deck
Charging Hopper	2½ yard
Feed Conveyor	30" CF
Under Conveyor	30" CF
Front Delivery Conveyor	30" CF
Sand Delivery Conveyor (optional)	18" CF
Swivel Feed Conveyor (optional)	30" x 32' LF
Rotovator	18" x7'-9" dia.
Tires	8.25 x 20 10 ply (12)
Brakes (optional)	Air-Vacuum-Mechanical
Width	8'—0"
Operating Length	53'—3"
Height set up	12'—6"
Height moving	12'—6"
Weight basic plant	49,600 lbs.*
Power required	115 H.P. Continuous Diesel or equivalent
Rated Capacity tons per hour 1" minus material based upon 25% crushing	125-220

*Less feeder and power.

Specifications subject to change without notice.

UNIVERSAL ENGINEERING CORPORATION Division of PETTIBONE MULLIKEN CORPORATION

619 C Avenue N.W., Cedar Rapids, Iowa
Phone 7105

4700 West Division St., Chicago 51, Illinois
Phone Spaulding 2-9300

You'll find them in the best quarries —

GARDNER-DENVER

Portables

Dependable in any weather —at high altitudes as well as low—because of their two-stage design and their completely water-cooled compressor cylinders.

Wagon Drills

For spotting and drilling holes at a fast pace—thanks to their high maneuverability—their powerful drilling, rotation and blowing, all under finger-tip control.

Sinkers

For sinking block holes or blast holes in any kind of rock—there's a size and weight that's right for fast, efficient drilling in any type of ground.

Send today for bulletins on Gardner-Denver quarry equipment.

Since 1859

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

In Canada: Gardner-Denver Company (Canada), Ltd., Toronto, Ontario

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS

BEFORE—Johnson-March system turned off at the crusher in an eastern stone crushing plant. Compare this unretouched photo with the one at the right.

AFTER—Note absence of dust when Johnson-March system is operating at this same crusher. These systems have proved themselves with many rock-crushing plants. We'll be glad to furnish names.

STOP DUST

at 1/10 the usual cost!

If you have a dust problem—no matter how large or small—no matter where the dust occurs . . . jaw crushers, cone crushers, conveyors, screens, unloading bins—it can be controlled or eliminated with a Johnson-March liquid diffusion system. Installation is fast, simple, and inexpensive. There is no interference with normal plant operations.

Ducts, fans and other cumbersome equipment are not necessary. Johnson-March compounds added to water do the work. This dust handling system costs far less than other types—in most cases only 1/10 as much. And maintenance costs next to nothing.

Without cost or obligation, why not have one of our engineers discuss your dust problems with you? Just drop us a line or mail the attached coupon.

THE JOHNSON-MARCH CORP.
1724 Chestnut St., Philadelphia 3, Pa.
Without cost or obligation, I would like to know more about the Johnson-March system of low-cost dust control. Q-5

Name .....
Company .....
Address ..... State .....
City .....

Johnson March

Specialists in Dust Control

1724 CHESTNUT STREET **Philadelphia 3, Pa.**

H&L *teeth that really dig!*

WITH

THE *Patented Locking* FLEX-PIN CONNECTION

TELSMITH ENGINEERED

NEW Tyrone Rock Products Co. plant PRODUCES 3000 TONS A DAY at low cost...with TELSMITH Conveying and Screening Equipment

● To serve the rapidly growing Atlanta market, this modern plant at Tyrone, Ga., is a remarkably efficient, low-cost operation. Designed and engineered by Telsmith, its average capacity is about 300 tons per hour with peaks of 450 tons. Highly efficient screening is supplied by 13 Telsmith vibrating screens making 8 sizes of crushed granite (−2″ to −8 mesh) for railroad ballast, and concrete and asphalt construction.

Finished sizes are stockpiled over a reclaiming tunnel, then rinsed and delivered to bins for loading cars and trucks. Telsmith did all engineering, including detailed drawings, furnished all screens and conveyors and carefully co-ordinated all equipment for smooth, efficient operation. To relieve yourself of technical details and to be sure of satisfactory results, consult Telsmith without obligation. Send for Bulletin 266.

TELSMITH Equipment in this Plant

One (1) 5′ x 12′ Pulsator Single Deck Scalping Screen

One (1) 5′ x 12′ Pulsator Double Deck Scalping Screen

One (1) 4′ x 10′ Pulsator Double Deck Rinsing Screen

Eight (8) 5′ x 12′ Vibro-King Single Deck Finishing Screens

Two (2) 4′ x 10′ Vibro-King Single Deck Finishing Screens

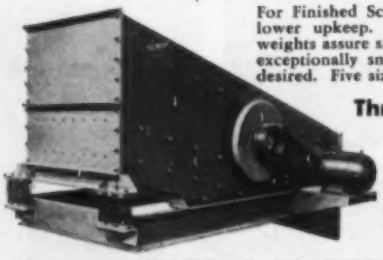
Twelve (12) Telsmith-BG Conveyors 18″ to 42″ wide, 42′ to 200′ long

Fifteen (15) 16″ x 18″ Bin Gates Boquad Tunnel Type

TYRONE USES Thirteen (13) TELSMITH SCREENS

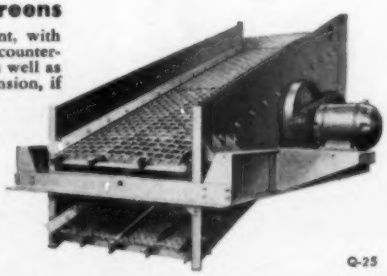
Ten (10) VIBRO-KING 2-Bearing Screens

For Finished Screening. Simpler, more efficient, with lower upkeep. Telsmith-patented automatic counterweights assure smooth starting and stopping as well as exceptionally smooth operation. Cable suspension, if desired. Five sizes: 1, 2, or 3 decks.



Three (3) PULSATOR 4-Bearing Screens

Recommended for heavy-duty scalping or screening large sized aggregates; uniform and efficient on all decks, under heaviest loads. Eleven sizes: 1, 2, or 3 decks.



Q-25

SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

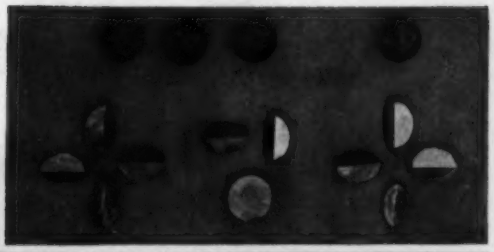
Cable Address: Smgworks, Milwaukee

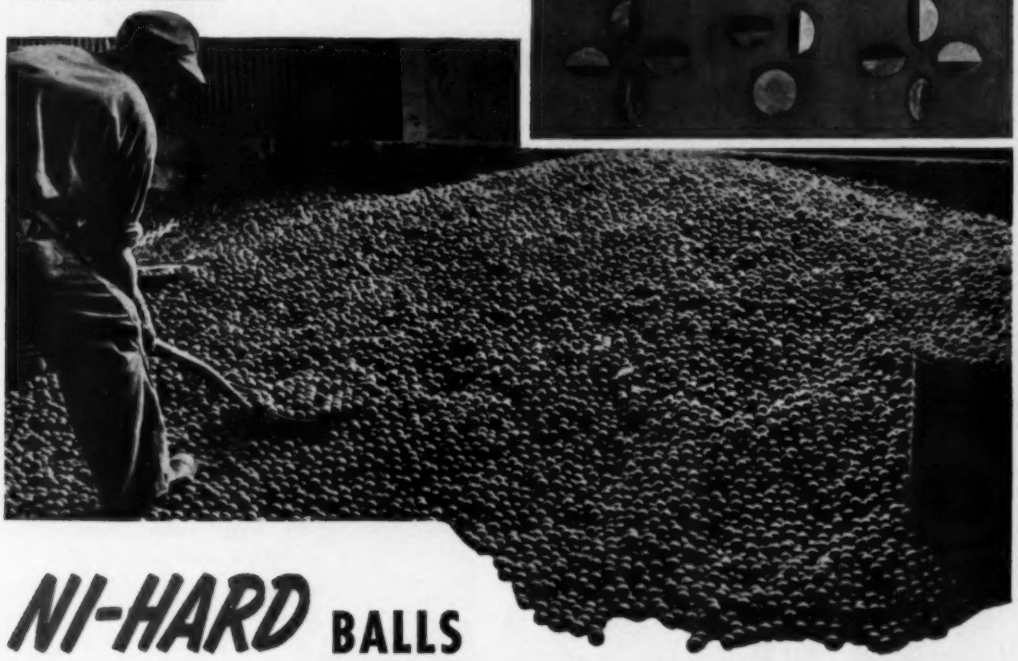
51 East 42nd St. New York 17, N. Y. · 211 W. Wacker Drive Chicago 6, Ill. · 713 Commercial Trust Bldg. Philadelphia 2, Pa. · 330 Main Street Cambridge 42, Mass. · Beebek Equipt. Co. Milwaukee 3, Wis. · A. N. Wigle, 294-6 N. Roosevelt Ct. Columbus 8, Ohio

Clyde Equipt. Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Equipt. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C.

Bish Equipt. Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 16, Va. • Wilson-Woomer-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

These Ni-Hard grinding balls, produced by Pennebacker Company, Emmaus, Pa., are being packed in drums for shipment. They are cast in sizes from ½" to 2". (Right) Ni-Hard balls sectioned to show soundness.





NI-HARD BALLS
SET NEW STANDARD IN GRINDING CEMENT

Ni-Hard® . . . a moderately priced nickel-chromium white cast iron, the hardest and most abrasion-resistant product of the iron foundry . . . is establishing new high performance records in plants throughout the country.

For example:

IN GRINDING CEMENT CLINKER

Consumption of Ni-Hard balls is averaging 19 to 33% of that of hardened forged steel balls.

IN WET GRINDING CEMENT STONE

Consumption of Ni-Hard balls is averaging 65 to 75% of that of hardened forged steel balls.

Ni-Hard grinding balls are currently being used by 12 of the leading cement companies throughout the country, involving some 20 individual plants. Ni-Hard was adopted by these concerns after production tests run over a period of 20 to 56 months proved Ni-Hard balls superior to hardened forged steel balls.

The use of Ni-Hard balls has been found to provide substantial economies in the operational cost of grinding media.

Investigate Ni-Hard. Get full information . . . mail the coupon now.

At the present time, the bulk of the nickel produced is being diverted to defense. Through application to the appropriate authorities, nickel is obtainable for the production of Ni-Hard for many end uses in defense supporting industries. There are authorized foundries, from coast to coast, equipped to produce Ni-Hard castings in all common forms and shapes.

The International Nickel Company, Inc.
Dept. 20, 67 Wall Street, New York 5, N. Y.

Please send me free booklets entitled:

"ENGINEERING PROPERTIES AND APPLICATIONS OF NI-HARD" AND "BUYERS GUIDE FOR NI-HARD CASTINGS"

Name_____ Title_____

Company_____

Address_____

City_____ State_____

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET NEW YORK 5, N. Y.

Dry Rolling Toggle

with Rockin' Chair Motion

A-1 Jaw Crushers

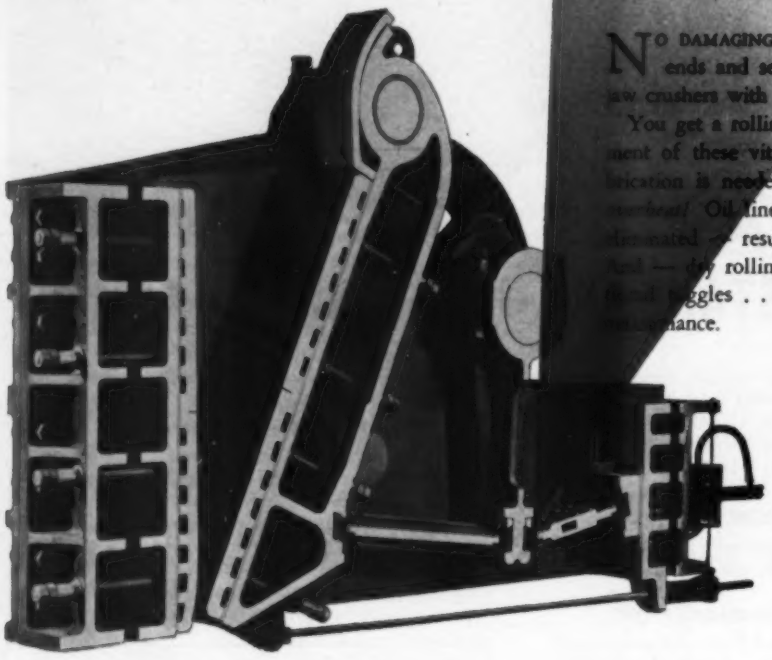
Reduces Maintenance and Downtime

No Lubrication Needed

NO DAMAGING sliding action of toggle ends and seats when you equip your jaw crushers with dry rolling toggles!

You get a rolling, "rocking chair" movement of these vital moving parts. No lubrication is needed, yet toggle ends *never overheat!* Oil lines and messy oil drip are eliminated — resulting in increased safety. And — dry rolling toggles outlast conventional toggles . . . operate with reduced maintenance.

A-3738



You can easily make your jaw crusher operations *more profitable* with dry rolling toggles. Call the A-C representative in your area, or write Allis-Chalmers, Milwaukee 1, Wis.

A-1 is an Allis-Chalmers trademark.

ALLIS-CHALMERS

A-C ALLIS-CHALMERS

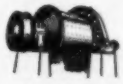
Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Hammermills

Vibrating Screens

Jaw Crushers

Gyratory Crushers



Grinding Mills

Kilns, Coolers, Dryers

Test Pilot

"Just try those springs," the salesman says and his customer, canny as well as pretty, takes him at his word. She wants to be sure what she's getting.

Testing is a good way to double-check Multiwall bags too. Subject them to the toughest going you can. Make sure your manufacturer checks them also—continuously and against rigid performance standards.

In Union's testing laboratories, Multiwalls have to prove themselves constantly—for strength, durability, moisture resistance, sift-proofness, every characteristic you expect of a good package.

Union Multiwalls are *uniformly* high standard. They are manufactured in the world's largest integrated pulp-to-container plant. Only in an integrated plant can first-hand control be maintained over *every step* of the process by which your package is made.

Best proof of the value of this extra protection is in the buying habits of America's largest Multiwall users. Men who purchase more than 85 per cent of the total production of Multiwalls list* dependable quality as one of their most important considerations in choosing a Multiwall supplier.

Insistence on uniformly high manufacturing standards is one of the many good reasons why, to a greater extent each year, these major buyers turn to Union for a substantial share of their increased Multiwall requirements.

More so every day . . .

IT'S UNION FOR MULTIWALLS

*August, 1951 research study.

UNION BAG & PAPER CORPORATION • NEW YORK: WOOLWORTH BUILDING • CHICAGO: DAILY NEWS BUILDING

What features do you want in a right angle drive ?

- ✓ HIGH EFFICIENCY
- ✓ ECONOMICAL OPERATION
- ✓ COMPACT CONSTRUCTION
- ✓ QUIET RUNNING
- ✓ LONG SERVICE LIFE
- ✓ LOW MAINTENANCE

For smooth, reliable, continuous transmission of Power where a right angle drive is required, — Philadelphia Spiral Bevel-Helical Reducers are the economical and efficient answer . . . They are widely used in non-metallic mining for operating Kilns, Ball and Pebble Mills, Crushers, Conveyors, Elevators, Hoists, Blowers and Fans, Car Pullers, Car Dumpers, Rotary Screens and many other services.

Every part from Housings to Bearings is manufactured and selected for the exacting service they must perform, . . . and, they're the product of over 60 years Gear Making Experience.

Available in both horizontal and vertical types, and in single, double and triple reductions, Philadelphia Spiral Bevel-Helical Units cover a standard ratio range from 1 to 1 up 238 to 1. Operating efficiencies run as high as 98%.

OUR 60TH ANNIVERSARY

get our catalog

Complete construction details are in our catalog SB-50. Write for a copy on your business letterhead.

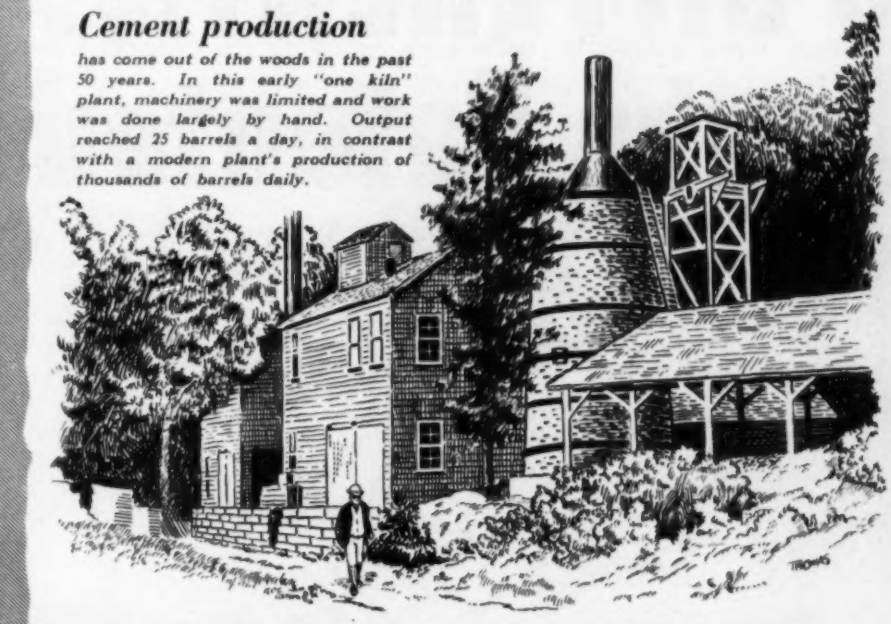
Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON • LYNCHBURG, VA.

Industrial Gears and Speed Reducers
LimiTorque Valve Controls

Cement production

has come out of the woods in the past 50 years. In this early "one kiln" plant, machinery was limited and work was done largely by hand. Output reached 25 barrels a day, in contrast with a modern plant's production of thousands of barrels daily.



Traylor Rotary Kilns are noted for dependable service and efficient operation all over the world. Each kiln is specially designed for its particular job. Traylor Bulletin 118 gives complete information and specifications.

Because of the rapid improvement of equipment, one pioneer company, still operating, has built and discarded four plants in succession to keep pace with new developments. For 50 years, Traylor engineers have worked hand-in-hand with the cement industry, developing better equipment to produce a uniform, high-quality product in increasingly large amounts. You can rely on Traylor experience to provide the same dependable machinery for your own particular needs. Traylor has experience . . . half a century of it.

TRAYLOR ENGINEERING & MANUFACTURING COMPANY
1426 MILL ST., ALLENTOWN, PA.
SALES OFFICES: New York • Chicago • San Francisco
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

OUR GOLDEN ANNIVERSARY YEAR
1902 1952

a **Traylor** *leads to greater profits*

So DIFFERENT... They're Patented!

Power Plus Anti-Rust Protection at No Extra Cost

Here are fuels so *different* they have been PATENTED—so *revolutionary* in action that they result in actual dollar savings for Sinclair users.

How? Sinclair fuels—and *only* Sinclair—contain the rust inhibitor RD-119®. This amazing chemical forms an invisible waterproof film throughout the equipment's fuel system—from fuel tank to combustion chamber. Used regularly in gasoline engines, Sinclair Gasoline with RD-119 *prevents* rust and corrosion—can save you costly repairs to carburetors and fuel pumps. Regular use of Sinclair Diesel Fuel containing RD-119 eliminates the problem of rust-clogged injectors.

Now, get *Full Power, High Anti-Knock* PLUS the *Anti-Rust Protection* of RD-119—exclusive with Sinclair... AT NO EXTRA COST! Phone your local Sinclair Representative today about Sinclair Anti-Rust Fuels.

Sinclair Refining Company, 600 Fifth Ave., New York 20, N. Y.

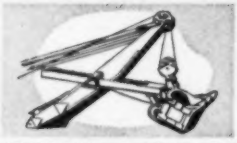
Rugged brute for quarrying!

LS-85 choice of veteran operator starting own business

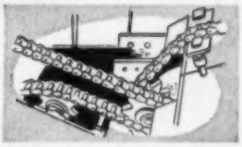
MILLARD I. BLAKE, Sedan, Kansas, operated shovels for 12 years before going into business for himself. He bought a Link-Belt Speeder heavy duty ¾-yd. LS-85. His operator, James E. Burton, says, "Brother, the LS-85 is a fast, rugged brute for quarry work."

Here are Link-Belt Speeder PLUS FEATURES that work for you

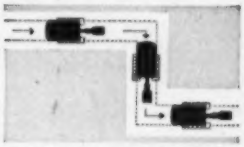
All-Welded Stress-Relieved Construction — extra strength without extra weight. Resists impact, twist. Field service simple.



All-Welded Boom and Dipper Stick —box-type construction for maximum strength. Dipper rides on rollers, eliminates sliding friction.



Independent Chain Crowd — is fast and positive. Self-adjusting to all boom angles. No cables to break, slip or adjust.



Turns on a Dime. Either track can drive or be locked independently. Digging lock controlled from cab.

LINK-BELT SPEEDER
CORPORATION
10,900-A

Builders of the most complete line of shovels, cranes and draglines
CEDAR RAPIDS, IOWA

What's U. S. Rubber doing at Pine Flat Dam?

View of U. S. Rubber belts ascending the mountain side for approximately three quarters of a mile.

Stockpiling coarse and fine material taken from the gravel pit.

At this great California installation, the finished aggregates and sand are carried by "U.S." conveyor belts from storage all the way to the batching plant high up on the site. The belting is 36" wide, climbs six flights for a total distance of 3700 feet. This 100% "U.S." belt installation is another example of 3-Way Engineering —"U.S." engineers worked with the conveyor equipment manufacturer and the contractor to produce this economical and efficient haulage system.

United States Rubber Company engineers have designed and built conveyor belts for a variety of installations, large and small. Let them advise you on any materials handling problems. Write to address below.

PRODUCT OF

U.S.RUBBER
SERVING THROUGH SCIENCE

Here conveyors are stockpiling the finished washed-and-screened gravel.

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Cut your maintenance costs on every rustable metal surface indoors and out with this practical, sensible coating!

STOP RUST! with RUST-OLEUM

Day in and day out, your equipment and metal structures face the *toughest rust-producing conditions* — dust, fumes, rain, moisture, heat and general weathering! To *stop rust* and protect your metal surfaces you need RUST-OLEUM!

RUST-OLEUM may be applied directly over surfaces *already rusted* without removing all the rust. Just wirebrush and scrape with sharp scrapers to remove rust scale and loose particles . . . then apply by brush, dip, or spray. Costly sandblasting and chemical pre-cleaning are not usually required. This means that one man often does the work of two with RUST-OLEUM! Practical, too . . . because RUST-OLEUM *beautifies as it protects* in all colors, aluminum and white.

RUST-OLEUM CORPORATION
2721 Oakton Street • Evanston, Illinois

May be applied directly over rusted surfaces without removing all the rust!
Available in All Colors, Aluminum and White

PROTECT CONVEYORS • PIPES • BUILDINGS • EQUIPMENT • TANKS
STACKS • METAL SASH • GIRDERS • STAIRWAYS • CRUSHERS • DUSTERS

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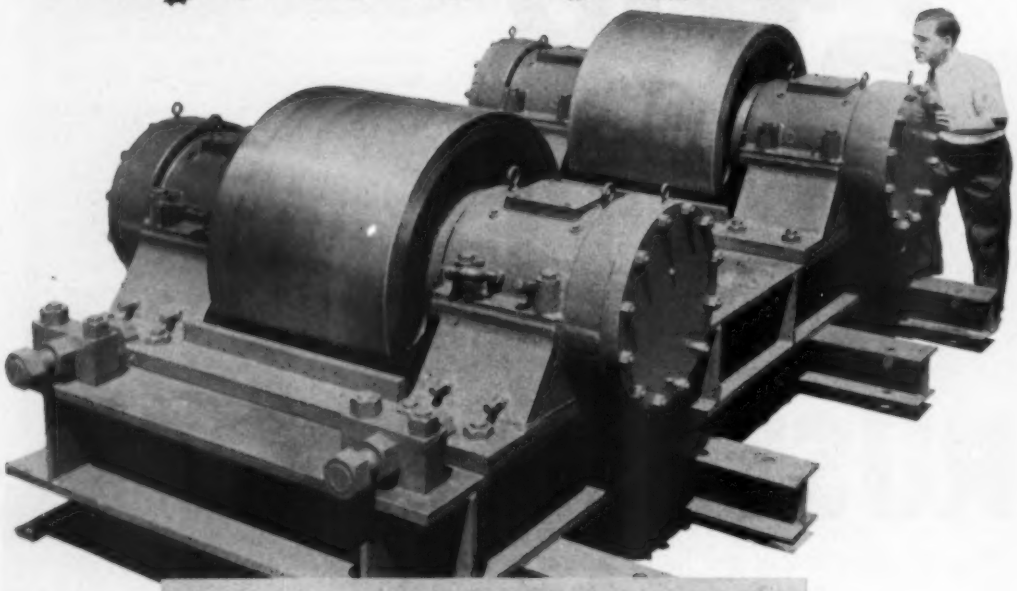
MAIL TO: RUST-OLEUM CORPORATION
2721 Oakton Street • Evanston, Illinois

- ☐ Have a Qualified Representative Call
- ☐ Full Details on Free Survey
- ☐ Complete Literature
- ☐ Nearest RUST-OLEUM Source

NEED 'EM RUGGED?



CALL ON STANDARD

Take a look at the ruggedness of the trunnion assembly pictured in the top photograph. These are trunnions for a 10 ft. diameter by 150 ft. long *STANDARD* kiln, just completed. Another *STANDARD* kiln mounted on flat cars, ready for shipment, is shown in the inset photograph. Both illustrations tell more graphically than words why *STANDARD* so often gets the CALL when the need is for rugged dependability. There's nothing skimpy about *STANDARD* Rotary Equipment. It is built *to last*, like the Company behind it. Now celebrating our 50th year of heavy engineering progress. WRITE TODAY FOR FULL DESCRIPTIVE LITERATURE

Rotary KILNS
COOLERS
CALCINERS
DRYERS
ANY size ANYwhere

STANDARD 50 YEARS 1902 1952 STEEL CORPORATION

STANDARD

STANDARD STEEL CORPORATION

5006 Boyle Ave., Los Angeles 58 ★ 419-6 Commonwealth Ave., Boston 15

THE EXPERIENCE OF A PIONEER CANNOT BE ACQUIRED OVERNIGHT

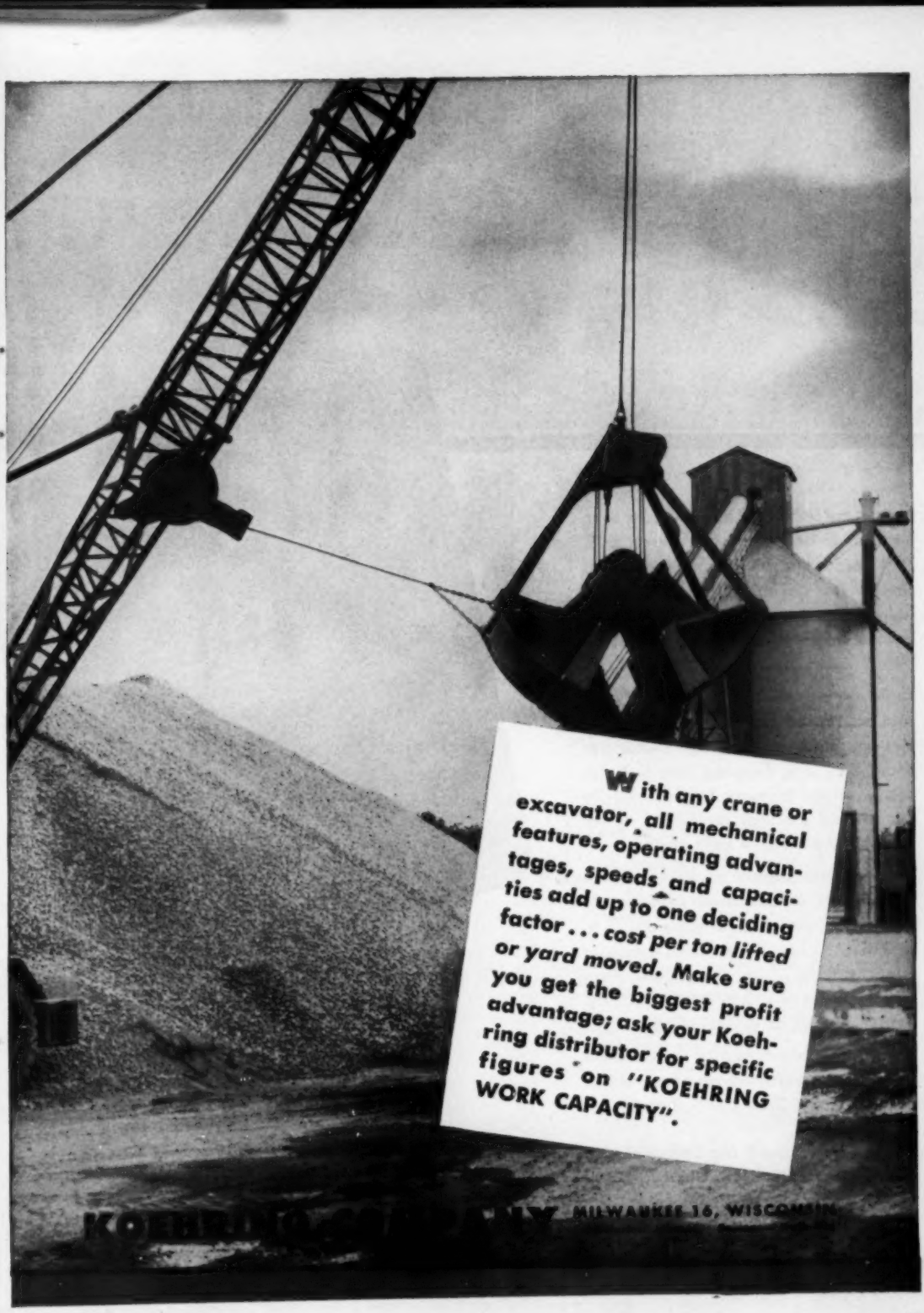
The men who led the westward movement of our people across America's plains and mountains had to learn many of their lessons from one unfailing teacher. That teacher, then and to this day, is Experience. There is no substitute for it. You cannot enjoy its benefits by reading about it, nor merely by copying the actions of others or voicing, parrot-like, their well-learned principles. This is as true in learning how to protect fuels, lubricants and machinery from dirt as it was in learning how to protect those pioneering settlers from hunger, thirst or the attacks of savages. So we say: *The makers of Winslow Filters and Elements have been pioneering the principle and successful application of Full-Flow filtration for nearly twenty years.* We take pride in original patents which we hold, and we congratulate those other manufacturers who are finally beginning to endorse the same ideas. But to those of you who are buying *full-flow filters*, we repeat: The experience of a pioneer cannot be acquired overnight. For added value born of experience, specify Winslow Filters!

FOR EVEN GREATER SAFETY, REMEMBER THE WINSLOW WARRANTY. ASK ABOUT ITS PROTECTION OF *YOUR* COSTLY EQUIPMENT!

WINSLOW FILTERS

Winslow Engineering Company 4069 Hollis Street, Oakland 8, California

You owe it to yourself to check...
"KOEHRING WORK CAPACITY"
KOEHRING HEAVY DUTY


With any crane or excavator, all mechanical features, operating advantages, speeds and capacities add up to one deciding factor . . . cost per ton lifted or yard moved. Make sure you get the biggest profit advantage; ask your Koehring distributor for specific figures on "KOEHRING WORK CAPACITY".
MILWAUKEE 16, WISCONSIN

Look at the record! Of the thousands built, 9 out of 11 Euclids are still in use today. That's proof that "Eucs" have the rugged strength and staying power to give profitable performance year after year under a wide range of operating conditions.

You can profit by the experience of Euclid owners. Over 60% of all "Eucs" sold are repeat orders! Leading contractors and industrial users buy Euclids because they are designed and built for heavy off-the-highway hauling. They're job proved for high production at the lowest cost per ton or yard moved.

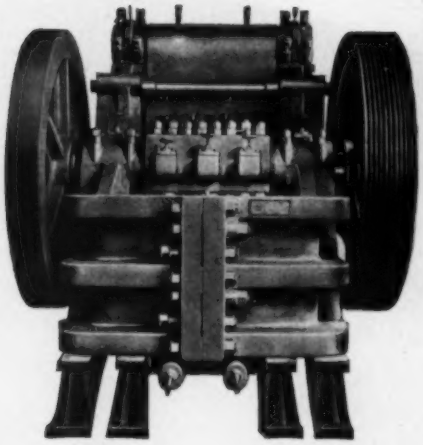
Rear-Dump Euclids of 10 to 34-ton capacities have loaded top speeds up to 35.7 m.p.h., with diesel engines of 125 to 400 h.p. Bottom-Dump "Eucs" range in capacity from 13 to 25 cu. yds., have diesel engines of 190 to 300 h.p. . . . top loaded speeds up to 34.4 m.p.h.

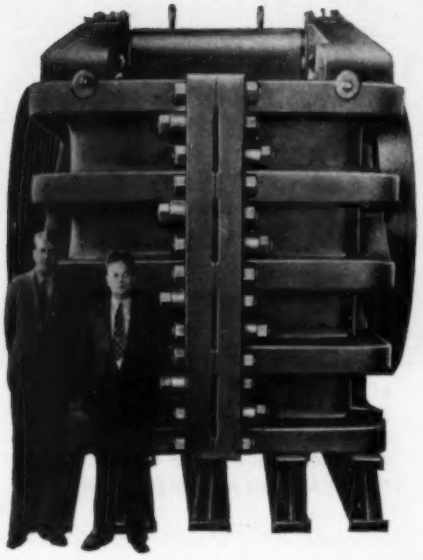
Write for information on the complete line of Euclid earth moving equipment or call your Euclid Distributor today.

The EUCLID ROAD MACHINERY Co.
Cleveland 17, Ohio

EUCLIDS

KENNEDY Swing Jaw Crushers





2-Section split frames of Herculite steel built to "take it" as well as "give it"

The strongest heavy-duty crushers ever built! Designed by KVS engineers to handle maximum rock and ore loads . . . built to reduce those "Hard-to-Crush" raw materials with minimum effort and lowest power consumption.

Real gluttons for work . . . versatile, sturdy, ready and able to handle the toughest crushing assignment and ask for more! Dependable under all operating conditions . . . trouble-free . . . constructed to give years of service . . . able to "take it" as well as "give it."

Swing jaws are reversible, end-to-end, side-to-side, to give twice the wear of ordinary types. Jaw plates made in one piece; swing jaw shafts cast integral with swing jaws . . . excessive wear eliminated.

All-in-all, the strongest jaw crusher built. Made in various sizes to meet your own specifications. Ask our engineering department to submit operating data, capacities, weights, etc.

Send for illustrated bulletin describing KVS swing jaw crushers.

EXCLUSIVE FEATURES OF THE KVS SWING JAW CRUSHERS . . . . .

- **Frames built of open hearth or Herculite steel with tensile strength of 60,000 lbs. per sq. inch.**
- **Counter-balanced fly wheel for lifting pitman at bottom of stroke. Hoisting engine or jacks not required to start machine.**
- **Frames made in two sections, bolted together at centers. Bolts thrown into tension whenever strain develops. This exclusive KVS feature is superior to construction methods where machines are joined at corners.**
- **Rigid strength of frames; toughness of jaw plates adds years of service to crusher; enables it to better withstand shock and stress of crushing tough rock and ore.**

IT COSTS LESS.. TO OWN THE BEST!

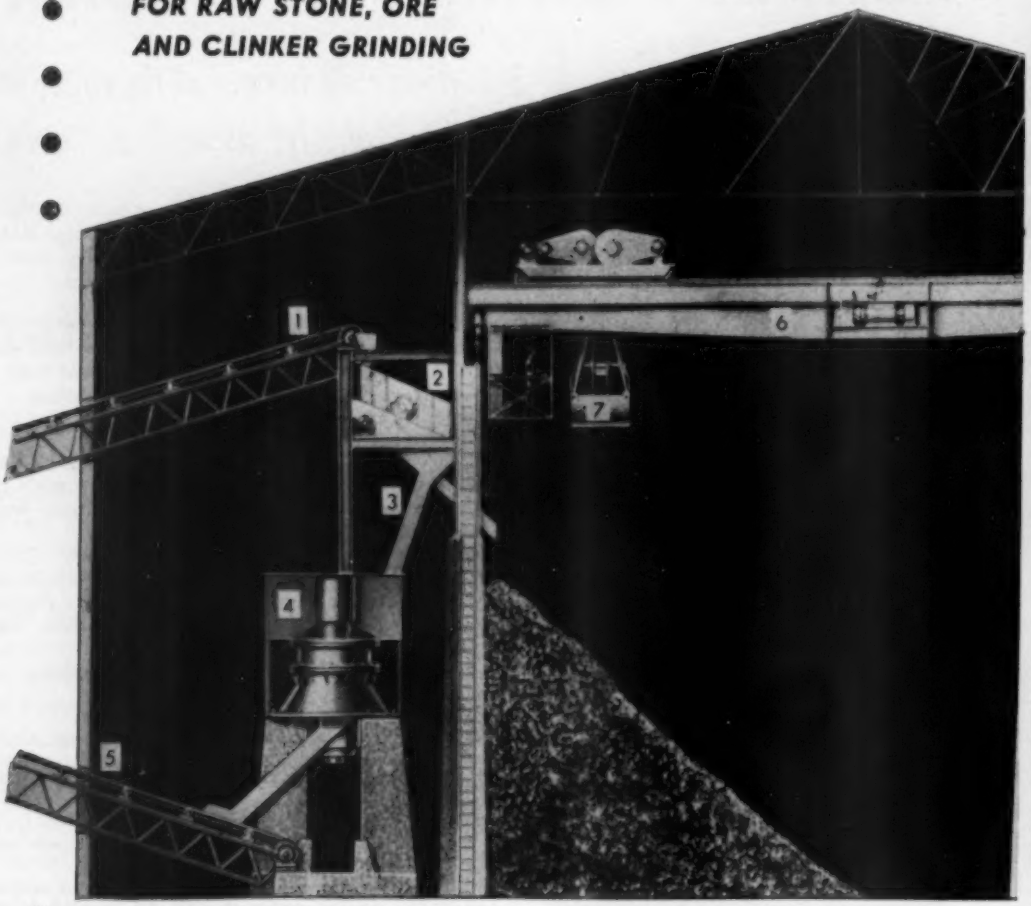
KENNEDY - VAN SAUN
MANUFACTURING & ENGINEERING CORPORATION
TWO PARK AVENUE, NEW YORK
FACTORY DANVILLE, PA.

KENNEDY STRATIFIED AIR

(Patents

WITH DUAL

FOR RAW STONE, ORE AND CLINKER GRINDING



1 BELT CONVEYOR—FEED TO CRUSHER
2 VIBRATING SCREEN
3 OVERSIZE RETURN CHUTE
4 GEARLESS GYRATORY CRUSHER
5 BELT CONVEYOR—CLOSING CRUSHER CIRCUIT
6 TRAVELING CRANE
7 CLAMSHELL BUCKET
8 MILL FEED HOPPER
9 WEIGHING FEEDER
10 STRATIFIED AIR SWEPT TUBE MILL

The Kennedy Stratified Air Swept Tube Mill System produces 94% plus through 325 mesh when grinding clinker 2 inches and finer. It dries and grinds simultaneously and air-cools cement while grinding clinker.

In our test plant, when grinding to 92% through 200 mesh, 100 test showed an increase in the capacity of the Tube Mill by the use of Dual Classification of from 29% to 52%.

The Kennedy Stratified Air Swept Tube Mill not only grinds raw material having up to 20% moisture, but becomes a combined dryer, grinding mill and separator, thereby serving a three-fold purpose.

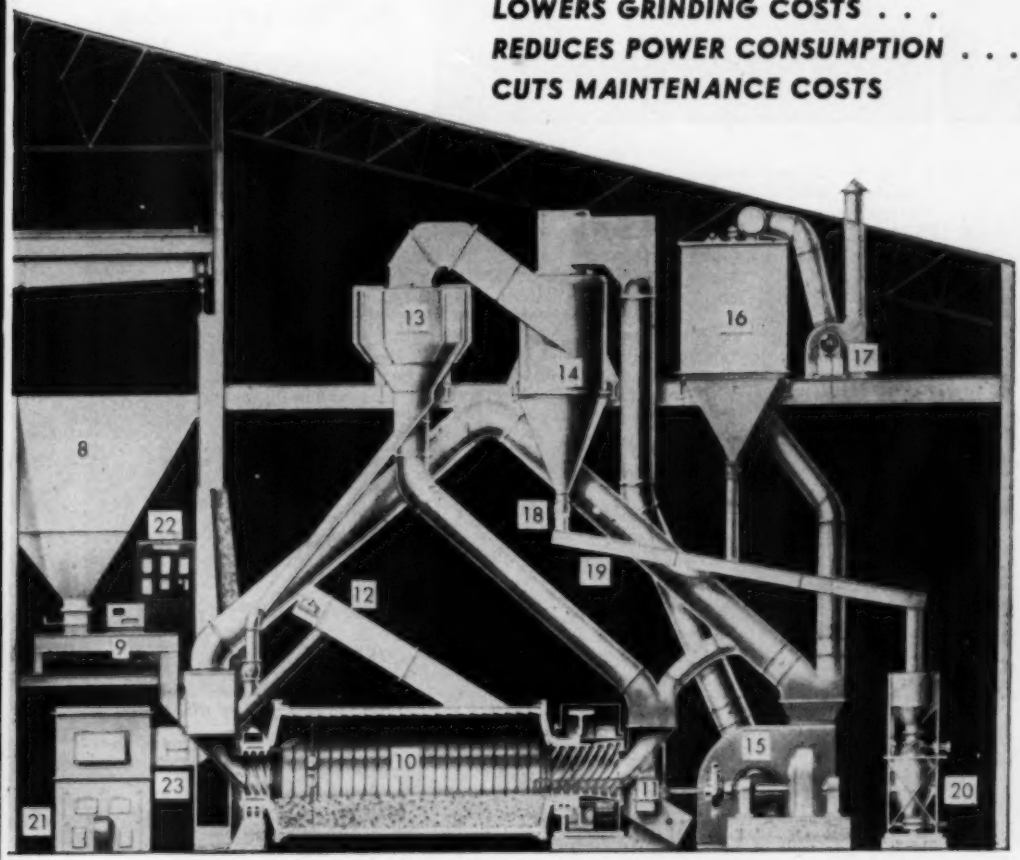
Marked economy of operation sets the Kennedy mill apart. By comparison, the savings effected in power consumption, wear-and-tear and man-hours, more than pay the initial installation cost within a 4-year or shorter period. Send for blueprints and operating data. They show why users say "It Costs Less To Own The Best."

SWEPT TUBE MILL SYSTEM

Pending

CLASSIFICATION

LOWERS GRINDING COSTS . . .
REDUCES POWER CONSUMPTION . . .
CUTS MAINTENANCE COSTS



11 CROSS CONVEYOR FOR OVERSIZE
12 RETURN CONVEYOR FOR OVERSIZE
13 RADIAL FLOW CLASSIFIER
14 CYCLONE COLLECTOR
15 MILL EXHAUSTER
16 DUST FILTER
17 DUST FILTER EXHAUSTER
18 ROTARY AIR LOCKS
19 FINISHED MATERIAL CONVEYOR
20 FINISHED MATERIAL TO STORAGE SILO
21 HOT AIR FURNACE
22 INSTRUMENT AND CONTROL CUBICLE
23 AUTOMATICALLY CONTROLLED TEMPERING AIR DAMPER

IT COSTS LESS.. TO OWN THE BEST!

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MANUFACTURING & ENGINEERING CORPORATION
TWO PARK AVENUE, NEW YORK
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AGAIN— KENNEDY PRESENTS
AN INNOVATION IN
CRUSHING EQUIPMENT

NEW

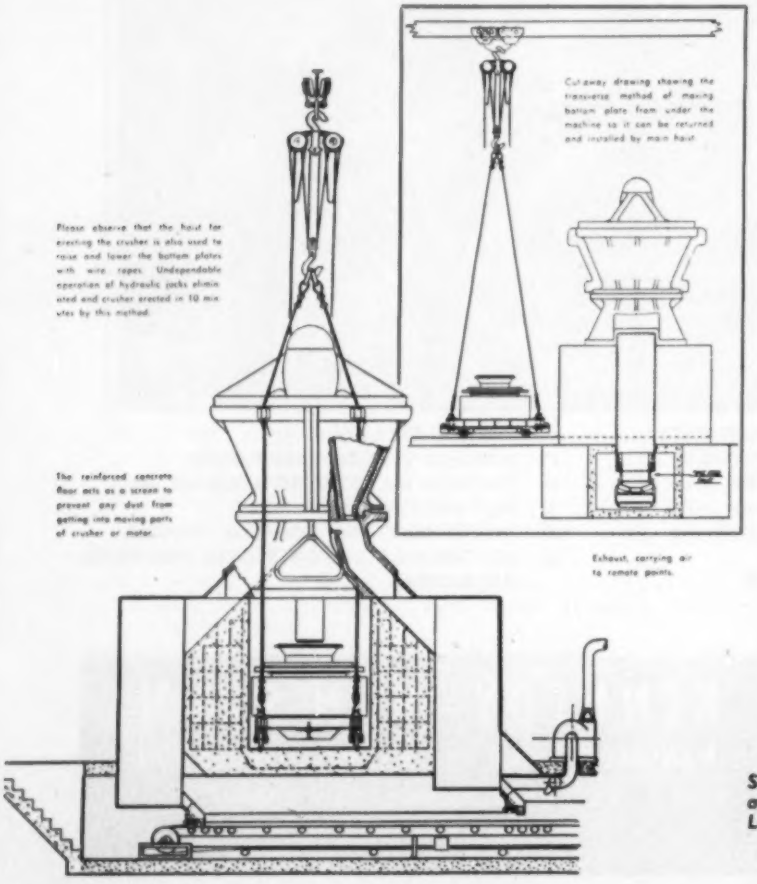
Gyratory Crusher with Dual Discharge Outlets Increases Output and Efficiency

Only KENNEDY has the correct answer to the "Sticky Ore" problem! KENNEDY Gearless Gyratory Crushers are now built with TWO DISCHARGE OUTLETS plus an exclusive "No-Stick" feature that increases efficiency and output. This distinct innovation in crusher design is another "FIRST" for the world-famous line of KENNEDY crushing equipment.

Hard-to-crush rock and ore such as limestone, trap rock, basalt, taconite, slag, etc., containing as high as 50% clay, can be handled without sticking or clogging by the exclusive KVS process.

No other crusher offers this advantage. Double discharge outlets, built at angle of 70 degrees, assure uninterrupted delivery of material. Other crushers, with single 42 degree outlets, cannot compare because the discharge outlet becomes clogged with sticky clay or taconite ore.

In the new KVS crushers, rock and ore pass through mantle and concaves at bottom. A vertical drop of 6 feet then quickly and surely disgorges sticky clay, etc. — greatly speeds production by eliminating clogging — saves countless man hours clearing stalled crushers.


Cut-away drawing showing the transverse method of moving bottom plate from under the machine so it can be returned and installed by main hoist.
Please observe that the hoist for erecting the crusher is also used to raise and lower the bottom plates with wire ropes. Undependable operation of hydraulic jacks eliminated and crusher erected in 10 minutes by this method.
The reinforced concrete floor acts as a screen to prevent any dust from getting into moving parts of crusher or motor.
Exhaust, carrying air to remote points.

CHECK THESE FEATURES!

Synchronous motor built into pulley assembly

Smooth frictionless operation because the crusher is gearless

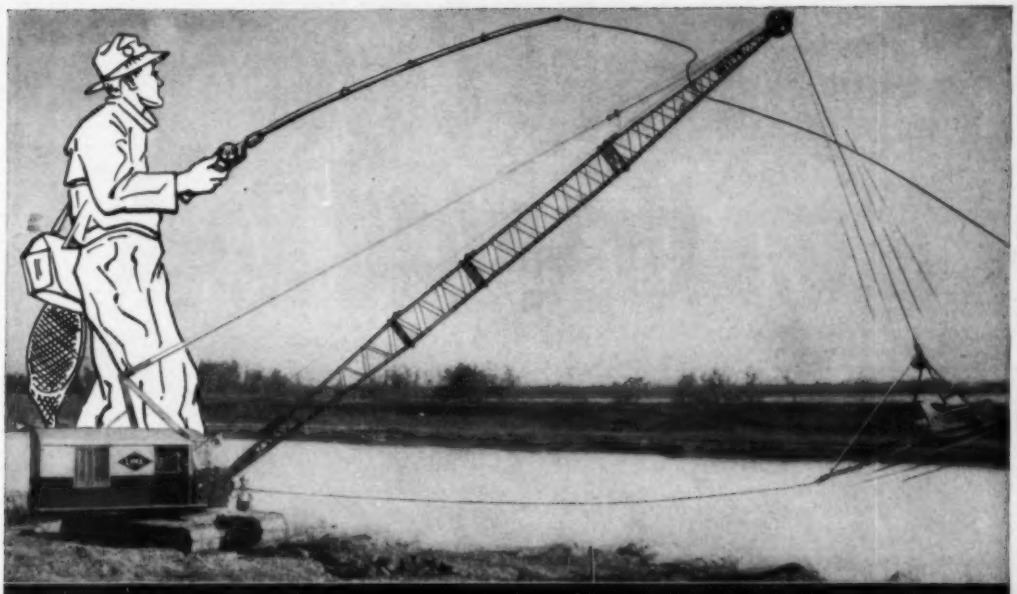
Power used ONLY for crushing

All moving parts carried on self - aligning roller bearings

KVS forced - feed oiling system pumps four barrels of oil per hour through bearings without waste

Eccentric and ball are spray babbited. NONE has been rebabbited in over three years

Send for bulletins describing all types of KVS crushers. Let us prove that "It Costs Less To Own The Best".



LIMA DRAGLINES use *The Fisherman's Secret* FOR A GOOD CATCH

When you're fishing, and want to drop the bait in the far pool where the big ones are waiting, your reel's got to be *friction-free* to let that line flow out, smooth as cream from a jug. And, after the strike, come in the same way.

When you're after record yardage, a smooth flowing line is just as vital . . . so we took a tip from the fisherman, and made our reels friction-free. You can 'cast' the dragline bucket further, increase your radius of efficient operation from each location. You can bring in bigger catches, because more power is going into the work lines and less into *friction drag on the machinery*. And there's further big benefits from reduced maintenance . . . less frequent lubrication, and smoother operation, because misalignment from bearing wear, that affects clutch alignment and functioning, is eliminated.

Lima pioneered the use of anti-friction bearings at all important bearing points on draglines, shovels, and cranes. They've kept on pioneering with other improvements that put Lima equipment in the top rank of profitable performers. If you want proof of this—just ask the Lima user. If you want details on how to put Lima equipment on your *pay-off* roll . . . just get in touch with us.

BALDWIN-LIMA-HAMILTON CORP.
CONSTRUCTION EQUIPMENT DIV.
LIMA, OHIO, U. S. A.

OFFICES IN PRINCIPAL CITIES OF THE WORLD

BALDWIN-LIMA-HAMILTON

BALDWIN · BLH · LIMA-HAMILTON

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS • TRUCK CRANES

Ripping the Cover off the Road Rock

LOW COST STRIPPING IN ACTION. Nathan Lang's TD-24 strips overburden at such a saving that, Lang is planning to get another. Lang formerly had stripping done for him.

Quarry owner finds International TD-24 fastest and most economical crawler for stripping overburden.

Nathan Lang of Charleston, Illinois, uses a TD-24 to strip overburden from his quarry producing 600 to 700 tons of crushed rock per day. He plans to get a second one soon.

Here is the reason in his own words. *"The TD-24 removes overburden faster than any other tractor I ever had in my seventeen years in the quarry business. Moving our own dirt saves us so much we are thinking of getting another TD-24 soon."*

Why the TD-24 performs better than any other tractor is no secret. With 148 maximum horsepower at the drawbar, it moves faster with a bigger bite on the blade. It turns with full loads with power on both tracks. Dozing cycles are speeded up with its fast forward-reverse shift and eight speeds to over 7 m.p.h. both ways.

See your nearby International Industrial Distributor for the key to increased stripping production at lower costs. Look over his shops and well stocked parts department, too. You'll see how well prepared he is to service the equipment he sells. And you'll be a TD-24 man from then on in.

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

See You at the Polls!

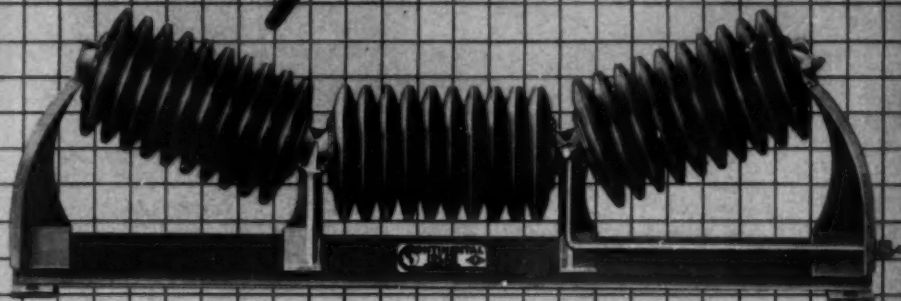
INTERNATIONAL

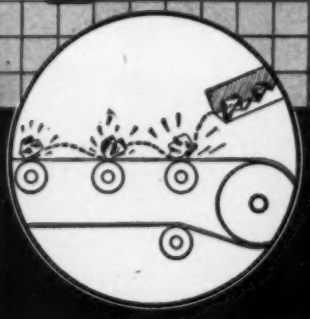
INTERNATIONAL HARVESTER

POWER THAT PAYS

Pit and Quarry

Save your Belts!





Use CONTINENTAL IMPACT IDLERS

Continental Impact Idlers under the loading point of your Conveyors will reduce damage to the belt covering and prevent breakdown of the carcass, thus lowering your belt cost per ton of material handled.

The design of Continental's Rubber Disc Impact Idlers has been proved superior by laboratory tests. The discs are mounted on a steel roll equipped with Timken Bearings and having the same sturdy construction as Continental's Standard Idlers so far as bearings, shaft size and grease seals are concerned.

Send us your orders and inquiries. Literature available on request.

CG-4001

INDUSTRIAL DIVISION
CONTINENTAL GIN COMPANY
BIRMINGHAM, ALABAMA
ENGINEERS CGC ATLANTA • DALLAS • MEMPHIS • NEW YORK CGC MANUFACTURERS

GM DIESEL CASE HISTORY No. 519-18

USER: Wissota Sand and Gravel Company, Eau Claire, Wisc.

Firm produces 500,000 tons a year.

INSTALLATION: GM 4-71 Diesel replaced gasoline engine in 1¼-yd. dragline four years ago. Firm also repowered two shovels and a portable crusher with GM Diesels and powers a washing plant pump with a 4-71.

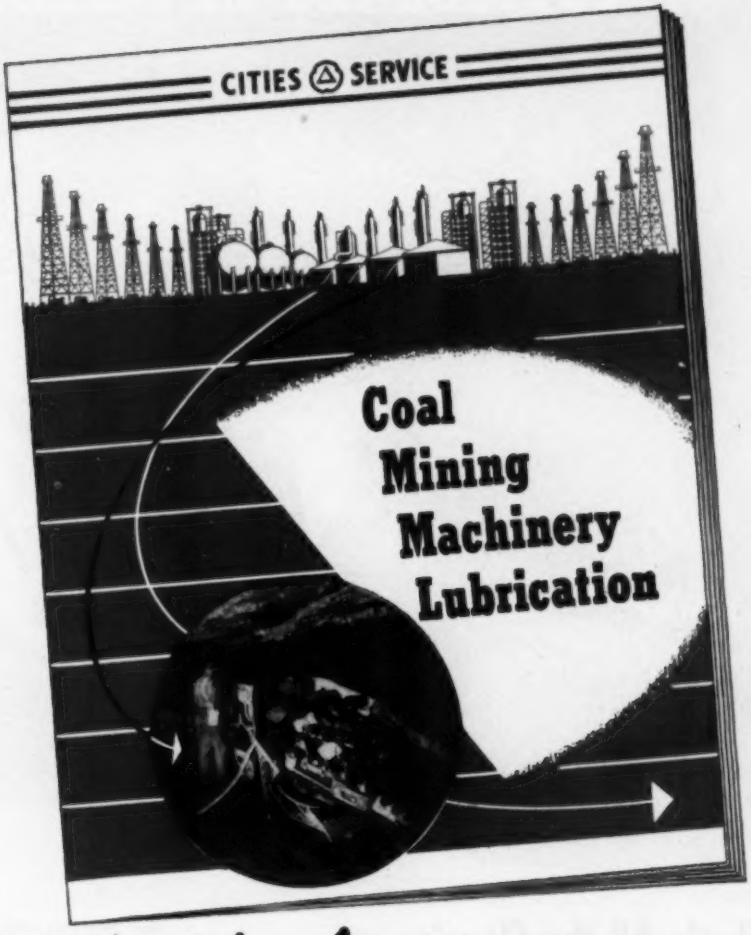
PERFORMANCE: With GM Diesel Power, the dragline loads one-third more per day while costing about half as much to operate. Operator says GM starts easier and permits faster swings with quicker recovery under load.

Repowered crusher produces 25% more and costs 25% less to run.

This Diesel Loads 33% More Gravel

at one-half the fuel cost

GM
GENERAL MOTORS
DIESEL POWER



Write Today for your FREE copy

TODAY, MORE THAN EVER BEFORE, THIS LUBRICATION BOOK CAN PROVE EXTREMELY USEFUL IN EVERY MINING OPERATION

This new Cities Service Lubrication Book offers lubrication recommendations for every type of mining machinery . . . everything from drills, cutters and loaders to wire rope and ventilating fans.

It includes a complete lubrication chart for all mining machinery. Invaluable! . . . especially when training new personnel.

Head man or beginner in *any* mining operation . . . you'll want this book not only for vital, specific lubricating recommendations and procedures, but also for the general information contained on the make-up and function of the complete line of high quality Cities Service oils and greases. FOR YOUR FREE COPY, write Cities Service Oil Company, Dept. I-21, Sixty Wall Tower, New York City 5.

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

That's All the Cleaning an Allis-Chalmers TEFC Motor Ever Needs

MAINTENANCE COSTS ARE LOW for users of Allis-Chalmers Totally-Enclosed, Fan-Cooled Motors. They are easy to clean because even the stickiest dirt can be wiped or blown off without dismantling the motor or even stopping it. They seldom require cleaning because cooling air flows over the *outside* of the motor. There are no external concealed air passages to clog up and cause over-heating. You get better operational continuity, lower maintenance.

Bearings Save Maintenance, Too

Double-shielded ball bearings require no regular maintenance under most normal operating conditions. Yet if difficult service makes re-lubrication desirable, it can be done without dismantling the motor or bearings. Rigid cast iron frame and stiff end brackets maintain bearing alignment . . . assure maximum bearing life.

A-3639

Texrope and Vari-Pitch are Allis-Chalmers Trademarks.

Get The Full Story Now

Your Allis-Chalmers Authorized Dealer or District Office can give you complete information on Allis-Chalmers Totally-Enclosed, Fan-Cooled Motors and how they can save you money. Call one of them today or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 51B7225.

Sold . . Applied . . Serviced . .

by Allis-Chalmers Authorized Dealers, Certified Service Shops and Sales Offices throughout the country.

CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.

PUMPS — Integral motor and coupled types from ⅜ in. to 72 in. discharge and up.

ALLIS-CHALMERS

PROGRESS IN EXPLOSIVES . . .

EVERY LOT TESTED

Here are some of the samples of explosives taken daily at one Hercules plant. Every day, at every plant, samples of each lot are analyzed and tested for conformity with Hercules' strict chemical and physical standards.

Sensitivity, consistency, water resistance, moisture content, density, percentages of various ingredients . . . these are some of the exacting laboratory inspection standards that must be met.

From raw materials to packaged products, Hercules' progress in explosives assures better blasting performance and helps to lower blasting costs.

Chart shows relative stability of dynamite prices since 1935, as compared with prices of other manufactured goods. 1935-39 values = 100.

HERCULES POWDER COMPANY

INCORPORATED

Explosives Department, 960 King St., Wilmington 99, Del.

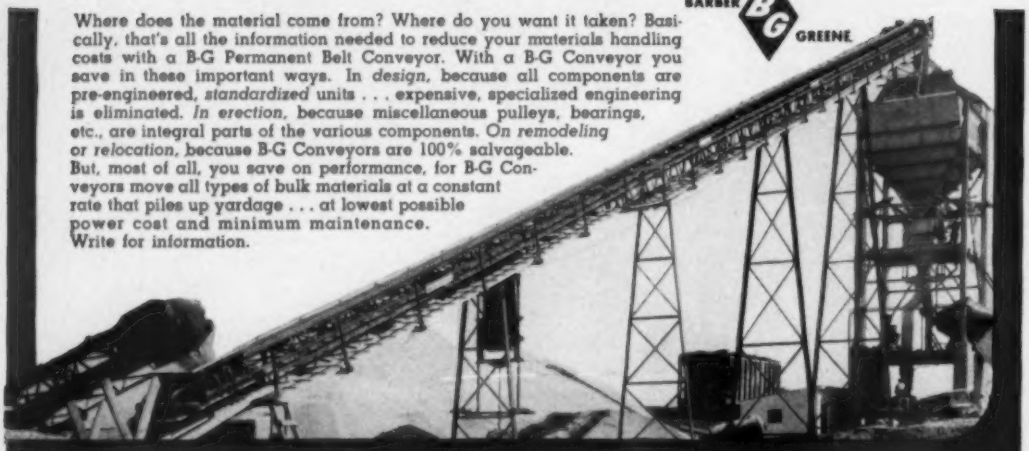
XR52-6

HOW YOU SAVE MONEY

.. WITH STANDARDIZED PERMANENT CONVEYORS

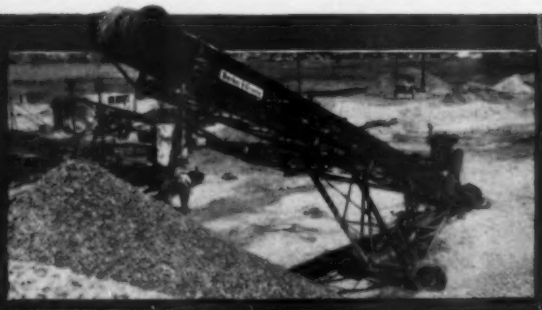
BARBER BG GREENE

Where does the material come from? Where do you want it taken? Basically, that's all the information needed to reduce your materials handling costs with a B-G Permanent Belt Conveyor. With a B-G Conveyor you save in these important ways. In *design*, because all components are pre-engineered, *standardized* units . . . expensive, specialized engineering is eliminated. *In erection*, because miscellaneous pulleys, bearings, etc., are integral parts of the various components. *On remodeling or relocation*, because B-G Conveyors are 100% salvageable. But, most of all, you save on performance, for B-G Conveyors move all types of bulk materials at a constant rate that piles up yardage . . . at lowest possible power cost and minimum maintenance. Write for information.



. . . WITH HEAVY-DUTY PORTABLE CONVEYORS

When materials handling calls for a heavy-duty portable conveyor, B-G has the answer, too. Here is the heavy-duty, pneumatic-tired Model 374 available with belt widths of 18", 24" and 30", in lengths of 30' to 60'. The 374 will handle any bulk material—sand, stone, wet concrete, coal—at capacities from 150 to over 425 tons per hour . . . with a single operator. Every aggregate producer, contractor, city, county and state highway department will want full information on the B-G Model 374 Heavy-Duty Portable Belt Conveyor.



B-G CONVEYORS . . . REDUCE COSTS, SPEED WORK AROUND THE WORLD

Barber-Greene

BG

Aurora, Illinois, U. S. A.

3 BIG REASONS why the LULL Shoveloader

OUT-VALUES 'em all!

1

DOES MORE JOBS

No "one-job" machine, Lull Shoveloader does scores of jobs . . . with equal efficiency. It's quickly and easily equipped for digging, loading, dozing, snow-removing, sweeping, etc. There are no problems of seasonal idleness . . . no wasted hours of standing time!

2

DOES MORE JOBS BETTER

Shoveloader's superior performance is no mere boast—it is an established fact, solidly backed by these design features: Double-Acting Bucket Control . . . Power Down Crowd . . . Longer, Higher Reach . . . Finger-Tip Hydraulic Control—plus unobstructed visibility and improved safety for the operator. These features have been proven by State, County and Municipal Highway Departments from coast to coast. Engineered to mount on and utilize the full power of the best industrial wheel type tractors, Shoveloader in no way interferes with use of the tractor for other purposes.

3

COSTS LESS TO BUY . . . AND TO OPERATE

When you buy Shoveloader, you save two ways: (1) the total cost of Shoveloader, plus the tractor of your choice, is well below that of so-called "self-contained" units, which furnish engine and loader as a unit. You select the tractor yourself from four popular makes (Minneapolis-Moline, Case, Oliver or Sheppard, each available in several models). (2) Low as Shoveloader's first cost is, it is returned to you many times over in work performed, profits earned, and expense saved.

THIS BULLETIN gives complete data on Lull Shoveloader. Have you received your copy?

MAKE US PROVE SHOVELOADER'S GREATER VALUE! See your Lull Distributor today for an actual demonstration. Or write direct for full information.

LULL Manufacturing Company
356 W. 90th Street • Minneapolis 20, Minn.

VOL. 45 SEPTEMBER 1952 No. 3

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PIT AND QUARRY

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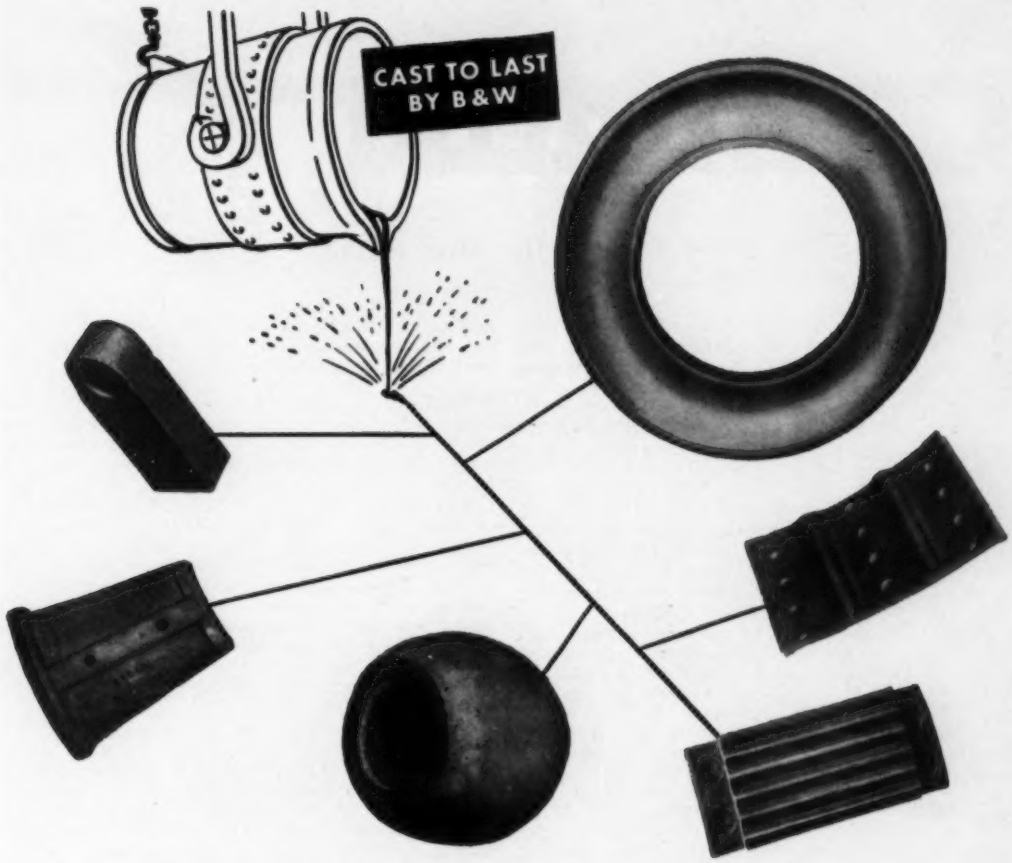

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editorial

Effects of the Steel Strike

THE steel strike is over, but its after-effects will be with us for a long time to come. Work stoppages in any major industry adversely affect not only that industry but also all segments of the economic system. This effect increases with the length of the strike. The direct loss in this 55-day strike was 17,000,000 tons of steel which are sorely needed in our armament program and by industry in general. The strikers are estimated to have lost a total of $450,000,000 in wages—about $600 per man—and the income of other workers indirectly affected was reduced enough to lower substantially the total national income for this year. Railroad freight car loadings fell to the lowest level in recent years, and the production of badly-needed freight cars fell sharply below that in preceding months and during the same period last year.

As far as the steelworkers are concerned, the strike was unprofitable. With the 16 cent-an-hour wage increase granted, the average worker will not recoup his $600 loss of income until May, 1954, and the new contract runs only a few weeks longer, until June 30, 1954. In the meantime, most of them are heavily in debt. They also received fringe benefits of 5 cents an hour and a modified union shop.

MEMBERS of the C.I.O. steelworkers union should be interested to learn how steelworkers who do not belong to this union fared during the strike. President R. B. Buchanan of the Independent Steelworkers Union at the Weirton Steel Co., Weirton, W. Va., said that the 12,000 employees there earned $7,485,770.64 during the time the C.I.O. members were on strike. Members of the I. S. U. at Weirton, who have not struck in more than 18 years, received a wage increase and new benefits, and their new basic wage rate is said to be the highest in the industry.

The loss of 17,000,000 tons or 15 percent of our annual steel capacity of 110,000,000 tons resulted, according to the U. S. Chamber of Commerce, in a loss of 20 to 30 percent of the year's production of defense goods; in a reduction in output of 400,000 cars and 120,000 trucks and a layoff of about half of the nation's 1,000,000 auto workers; in a loss of 20,000,000 tons of iron ore for stockpiling at the mills due to the 7-week stoppage of the Great Lakes ore shipping fleet.

Hardly an industry went unaffected by the strike, either directly or indirectly. Producers of flux stone, roasted dolomite, lime, fluorspar, and other nonmetallic minerals used in the production of steel suffered sharp cuts in demand in the middle of their operating season, forcing many of them to curtail operations or shut down entirely for a short period. Producers of silica sand and other materials used in the manufacture of the multitude of steel products also lost business. Finally, the many industries producing construction materials, including cement, sand and gravel, crushed stone, lime, gypsum, etc., have lost, and will continue to lose business due to the curtailment of steel for construction.

THESE industries will continue to feel the effects of this strike for many months to come. For example, the freight car shortage this fall is expected to be one of the worst in history. The production of freight cars had for several years been at a rate lower than the retirement rate of old cars, and the steel strike sent production to even lower levels. Even if the rate of car production were stepped up sharply, this would have little effect until next year. The car shortage will be further increased by the fact that the steel industry, in order to get enough iron ore to operate at capacity until next year's lake shipping season begins, must resort to car shipments from the Iron Range to supplement the ore fleet. It is not yet known how many of the available freight cars will ultimately be diverted for this purpose, but the number will be considerable.

The cost of producing steel and the price to the consumer will now be higher ($5.20 per ton), a fact which will eventually force price increases in all industries using steel in the manufacture of goods, in spite of Administration efforts to "isolate" the effects of this increase. This will cause another boost in the price level, giving added impetus to the inflationary spiral. The wage increases granted to steelworkers also set a pattern for increases in other basic or related industries. John L. Lewis has already served a 60-day notice that the U.M.W. will end its contract with the coal mines on September 20, possibly presaging another costly industrial dispute.

THE government's ineptness and its partiality to labor have been blamed for bringing on the strike and for prolonging it. President Truman could at any time have invoked the Taft-Hartley Act and brought the strike to an earlier conclusion, but this he consistently refused to do. One of the steps necessary to prevent such strikes in the future has been taken by Congress in stripping the Wage Stabilization Board of its disputes powers—the insistence of the Board on a union shop for the steel industry was one of the main stumbling blocks to agreement between the industry and the union. According to the U. S. Chamber of Commerce, Congress can go a step further by ending price and wage controls when they expire next April 30, thus returning wage issues to the bargaining table. Another step would be to pass legislation outlawing industry-wide bargaining, thus breaking the unions' strangleholds on specific industries and returning bargaining to the local level.

Walter E. Trauffer

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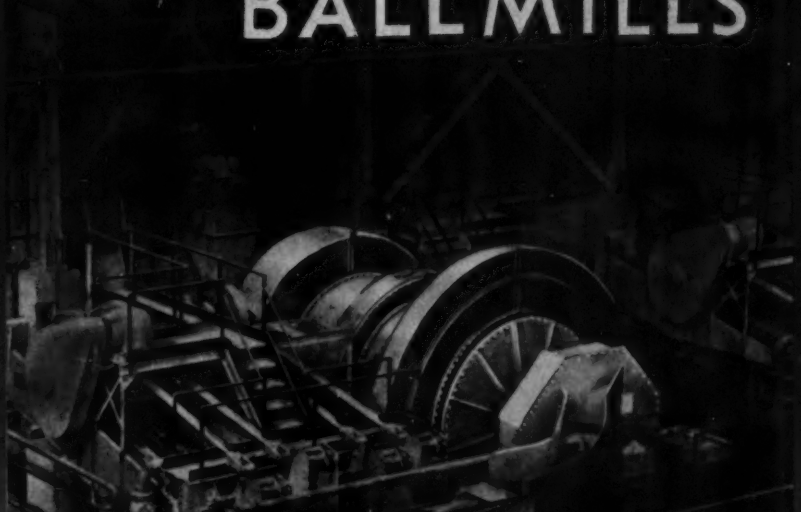

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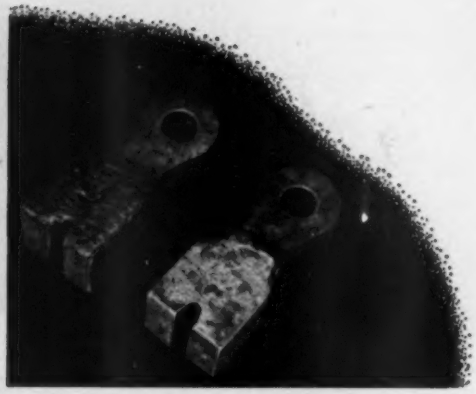

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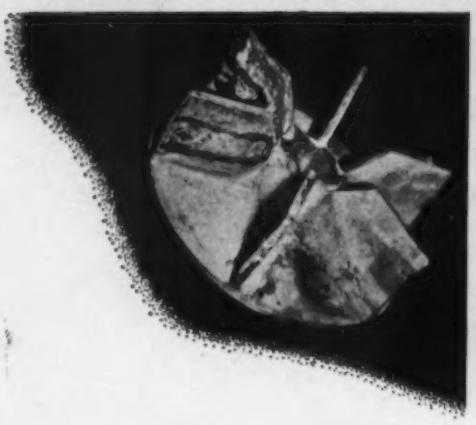

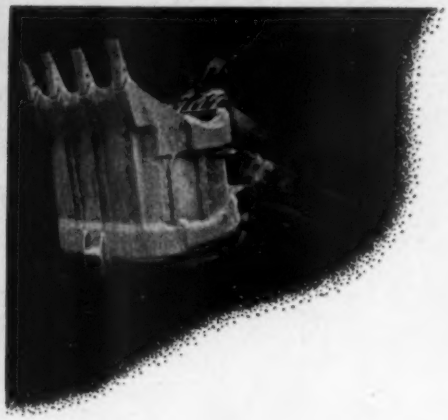

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news of the industry

PIT AND QUARRY

National Safety Council Announces Program of Cement & Quarry Sessions

A symposium on plant safety problems will highlight the cement and quarry sessions of the 40th National Safety Congress and Exposition to be held in Chicago, Oct. 20-24. The symposium, scheduled for Tuesday afternoon, Oct. 21, will be moderated by M. C. M. Pollard, safety director, National Gypsum Co.

J. E. Collins will lead off the program with a talk on "Job Training for Safety." As supervisor of training for Universal Atlas Cement Co., Mr. Collins has had extensive experience in the field of training workers. John Murdock, master mechanic for the Cedar Hollow plant of Warner Co., will speak on electrical hazards found in small plants. The program will close with a talk by C. A. Gustafson on plant maintenance and its tie-in with safety. Mr. Gustafson is superintendent for the Callanan Road Improvement Co., South Bethlehem, N. Y.

The viewpoint of management and supervision will be aired at the Wednesday afternoon session. A. E. Diem, vice-president for manufacturing, Dictaphone Corp., will speak on "Management and Safety." M. A. Gimbel, safety engineer, Rohm & Haas Co., will show various methods that can be used by foremen in getting safety to the men.

Dr. J. L. Rosenstein, industrial psychologist and lecturer on the human factors in accident prevention, will be the Thursday luncheon speaker. Dr. Rosenstein, well known to safety men throughout the nation, is the author of the popular "Human Side of Safety" and the "Psychology of Safety" booklets published by the National Safety Council. He assisted in the production of six films produced by the Council, entitled "Human Factors in Supervision."

Two recently produced sound slidefilms will be featured on the Thursday afternoon program. It will be the premiere performance for the Council's "Safe Operation of Heavy Duty Trucks." The Gypsum Association's "Pass the Word Around" also will be shown. The session will conclude with some helpful advice on improvising visual aids by A. B. Hofteizer, safety supervisor, Laverack & Haines, Inc., Buffalo, N. Y.

As in previous years the American Society of Safety Engineers will present morning sessions on topics of general interest.

Pennsylvania Salt Mfg. Co. Acquires Fluorspar Mills

The Pennsylvania Salt Manufacturing Company acquired two fluorspar mills in the Kentucky mining district in recent months. The firm leased the workings at Marion, formerly known as the Bertelson mill, operated by Minerals Flotation Corporation, from R. N. Frazer, vice-president of the Kentucky Fluorspar Company, who purchased the property from the RFC.

The second acquisition is the C. and L. mill near Mexico, Ky., formerly operated by Herbert Crider and Cecil A. Lennon. This installation was purchased by Pennsalt, which also contracted for a 60,000- to 75,000-ton tailings pile.

About 275 men from Canada and the United States attended the official opening of the new pit and processing mill built and operated in West Paris, Ont., Canada, by Consolidated Sand and Gravel Company, Limited.

$1,000,000 Research Center Planned by Natl. Gypsum In Buffalo, N. Y., Area

The National Gypsum Company plans to build "in or around Buffalo" a new research center costing more than $1,000,000, according to Chairman Melvin H. Baker. The site for the new development will be chosen soon.

"Plans for the new research center," Mr. Baker said, "are now being prepared, and the company hopes to start construction by early fall. It is expected to be completed in the summer of 1953."

In the last few years National Gypsum has substantially increased its research facilities and personnel for the development of new products, improvement of existing products, and development of new processes. The firm now proposes to centralize these activities in one structure to be located in or near Buffalo, Mr. Baker added.

Roland M. Craigmyle Elected President of Giant Cement

Roland M. Craigmyle, chairman of the board of Giant Portland Cement Company and its subsidiary, Carolina Giant cement company, has been elected president of both companies.

He succeeds John A. Philbrick, who died in a plane accident.

Coming Events

September 15-17, 1952—Mountain Lake, Va. Annual operating meeting, National Lime Association. (Open to members only.) Mountain Lake Hotel.

September 22-25, 1952—Denver. Metal and Nonmetallic Mineral Mining convention and exposition, American Mining Congress.

October 20-24, 1952—Chicago. 40th National Safety Congress and Exposition. Conrad Hilton, Congress, Morrison, Sheraton, and LaSalle hotels.

January 18-21, 1953—Washington. Annual convention, National Agricultural Limestone Institute, Inc. Hotel Statler.

January 25-29, 1953—Cleveland. 33rd annual convention and exhibit, National Concrete Masonry Association. Public Auditorium.

February 23-26, 1953—San Francisco. 37th annual convention, National Sand and Gravel Association. Hotel Fairmont.

February 23-26, 1953—San Francisco. 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

1951 Sets New Record In U.S. Consumption Of Industrial Explosives

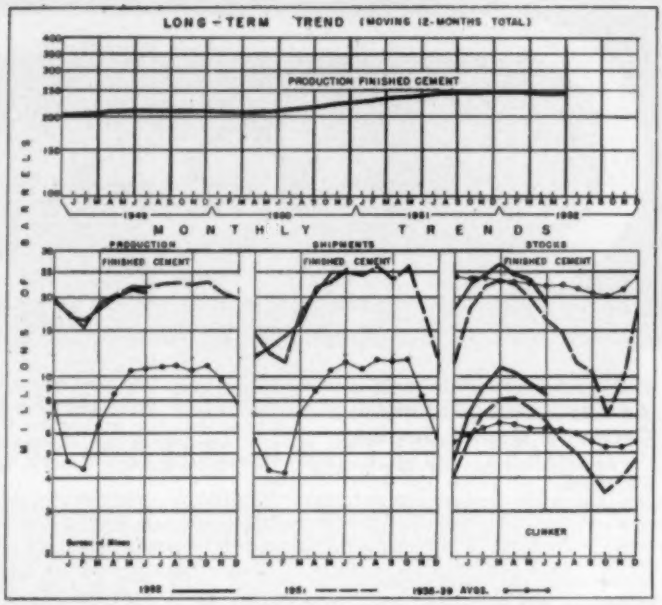
Consumption of 753,820,583 lb. of industrial explosives in the United States during 1951 was 5 percent greater than in 1950 and was the highest annual total, according to the U. S. Bureau of Mines. The second-largest consumption year was in 1948, when 725,227,173 lb. were used.

Sales of all high explosives other than permissibles and liquid oxygen increased in 1951 over 1950, whereas consumption of permissible explosives and black blasting powder declined from the previous year's consumption. Sales of high explosives other than permissibles reached a new record annual total. Consumption of high explosives other than permissibles increased 6 percent over 1950, due to increased consumption by all uses except coal mining and "all other purposes". In metal mining the increased consumption in 1951 was 15 percent; quarrying and nonmetal mining and railway and other construction work used 8 percent more high explosives other than permissibles than in 1950. Sales of permissible explosives declined 1 percent in 1951, as compared with 1950. Use of liquid oxygen explosives in coal mining increased 47 percent over 1950 and consumption increased 17 percent in quarrying and nonmetal mining.

Thirty-nine percent of the industrial explosives consumed in 1951 was used for mining coal. In 1950 coal mines used 41 percent of the industrial explosives sold. Bituminous coal mines used 31 percent and anthracite mines 8 percent of all types of industrial explosives. Coal mines used 291,786,782 lb. of all types of explosives in 1951, of which 152,500,237 lb., or 52 percent, were high explosives other than permissibles; 107,182,402 lb., or 37 percent, were of permissible type; 11,835,825 lb., or 4 percent, were black blasting powder; and 20,268,318 lb., or 7 percent, were liquid oxygen explosives.

Metal mines in 1951 used 15 percent more explosives than in 1950. Among states using large quantities of explosives for metal mining, the greatest percent of increase was in the large copper-producing state of Nevada, followed by Colorado, Kansas, and Oklahoma, heavy producers of lead-zinc ores. Other metal-producing states showing large increases were Utah, Minnesota, New York, and Tennessee. Metal mines in 1951 consumed 147,212,729 lb. of industrial explosives, or 20 percent of all explosives used in 1951. Practically all explosives used in metal mines were high explosives other than permissibles.

A total of 152,353,497 lb. of explosives were used in quarries and nonmetal mines in 1951, an increase of 8 percent over the amount consumed in 1950. The large quarry and nonmetal mining states of West-Virginia, Indiana, New Mexico, Michigan, Ohio, and North Carolina all showed increased use of explosives over 1950. Among the states that reported decreased use of explosives in 1951 were Oklahoma, Iowa, and Tennessee.



SUMMARY—The output of 20,748,000 barrels of finished portland cement in June 1952, as reported to the U. S. Bureau of Mines, was 6 percent less than that reported for June, 1951. Mill shipments totaled 25,067,000 barrels—an increase of 1 percent as compared to the June, 1951 figure, while stocks of 18,901,000 barrels was 14 percent higher than at the same time a year ago. Clinker production during June amounted to 19,950,000 barrels—6 percent less than in June, 1951.

PRODUCTION—One hundred and fifty-five (155) plants located in 37 States and Puerto Rico produced 20,748,000 barrels of finished portland cement during the month, as compared to 153 plants which manufactured 21,984,000 barrels in June, 1951. Clinker production was 19,950,000 barrels, as compared to 21,327,000 barrels in June, 1951.

SHIPMENTS—Mill shipments of finished portland cement increased 1 percent from the total shipped in June, 1951. Shipments were greater in 10 districts and lower in 9 districts than shipments recorded for June, 1951. The percentage changes range from a 34 percent increase in the Kansas district to a 42 percent decrease in the western Pennsylvania-West Virginia district. Other marked gains were shown by the Virginia-Georgia-Florida-Louisiana-South Carolina-Mississippi, the western Missouri-Nebraska-Oklahoma-Arkansas, the Iowa, and the Illinois Districts. A decrease of 33 percent was noted in the Indiana-Kentucky-Wisconsin district.

STOCKS—Mill stocks of 18,901,000 barrels of finished portland cement were reported at the end of June, 1952—14 percent greater than on the same date in 1951, while stocks of clinker amounted to 8,450,000 barrels—26 percent greater than at the same time last year.

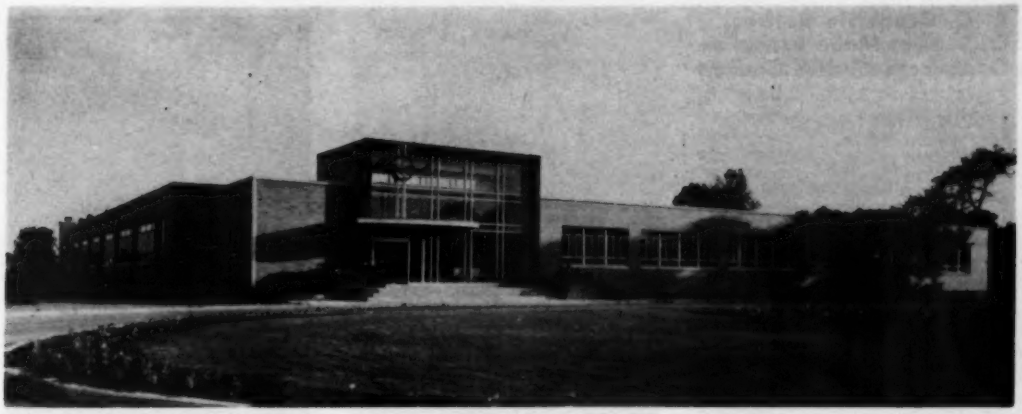
Quarries and nonmetal mines consumed 20 percent of all explosives used in the United States during 1951. Most of the explosives were of the high explosives other than permissible type, but some black blasting powder and permissibles were also used.

Railway and other construction work in 1951 required over 7 percent more explosives than in 1950. This use consumed a total of 151,511,100 lb., or 20 percent of all industrial explosives manufactured and sold in 1951. Of the larger consuming states, the greatest increases in 1951 over 1950 were reported in New Mexico, New York, Oregon, Tennessee, Pennsylvania, Colorado, and Texas. Among the large consumers, Washington and California showed a sharp decline from the 1950 consumption.

The large coal-producing states in 1951 were the heaviest users of industrial explosives. Those consuming the largest quantities of industrial explosives were Pennsylvania, West Virginia, Kentucky, Ohio, and Illinois. These five states used 39 percent of all industrial explosives consumed in the United States during 1951.

A new and modern office building, said to represent the very latest developments in concrete construction, will soon be completed at the Humboldt, Kans., plant of the Monarch Cement Company. The work comprises complete remodeling of an existing structure and the addition of a large executive wing.

As announced by Robert M. Koch, executive secretary of the National Agricultural Limestone Institute, Inc., the 1953 annual convention of the Institute will be held in Washington, D. C., the week of January 18 through 21. Sessions and convention headquarters will be at the Hotel Statler.



• The newly-completed research laboratory of International Minerals and Chemical Corporation at Skokie, Ill.

International Minerals Opens Laboratory at Skokie, Illinois

International Minerals and Chemicals Corporation, has recently completed a general research laboratory in Skokie, Ill. Located in one of the newest and most modern industrial districts in the Chicago area, it is continuing the trend to large low buildings located in attractive surroundings. The Portland Cement Association laboratories are situated in this same suburb. (See PIT AND QUARRY, June, 1950, page 64.)

International's new laboratory will house the general research activities of the company involving the production and use of its present products and the development of new products. It is expected that the increased facilities will provide for an expansion in research in new chemicals and processes to provide greater diversification of the company's activities.

The building occupies about ¾ acre of a 17 acre site which has been landscaped, and adjoins a forest preserve. The structure is completely air conditioned and has provision for special temperature and humidity controls for experimental work. There are complete facilities for carrying on research in the chemical and minerals fields, and offices and a library are also provided.

Blast Furnace Slag Exempted By Renegotiation Board

As announced at the National Slag Association's mid-year meeting in Detroit last month, the Renegotiation Board has ruled that blast-furnace slag is exempt from renegotiation under the Act of 1951, Public Law 9, 82nd Congress.

This decision obviates certain inconveniences which would arise with slag contracts involving federal agencies.

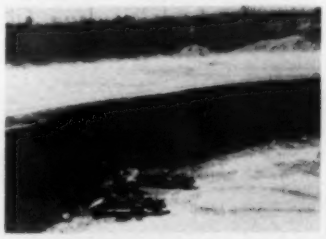
Five Men Killed by Stone As Quarry Hopper Collapses

At Apache Junction, Ariz., the collapse of a wooden hopper holding 150 tons of crushed rock on July 24 caused the worst mine disaster in the history of the state. Five men were killed beneath the avalanche of rock, timbers, and debris. The quarry was operated by the Arizona Precast Concrete Company.

According to Clifford Murdock, state mine inspector, the quarry was being worked in violation of the law. He stated that failure to notify his office before starting a mining or quarrying operation is a misdemeanor under state law.

The victims included Walter A. Faidley, Floyd E. Nicholson, James W. Pennington, Ray Cox, and Alvin J. Cox. Two other men who were also in the group under the hopper escaped unharmed. It was stated that there was no warning of the weakening of the bin structure.

Cover Picture....



• This miniature of our September cover picture shows the Azusa Rock & Sand Company's pit operation at Azusa, Calif., where a deposit of uniform quality and stratification is seen. The material runs approximately 30 percent sand, 30 percent gravel up to 1½-in., and 40 percent from 1½-in. to 3 ft. Due to the uniform quality of the natural deposit the pit can be operated by bench excavations of 50 to 60 ft. Where the pit excavation is made from a single high bank, a dragline is usually mounted on the rim to break down the face of the deposit. Equipment used includes a 1201 Lima diesel shovel with a 3½-yd. dipper, three 25-ton bottom-dump Euclids, and a fourth Euclid for a standby. The average hourly capacity is approximately 500 tons per hour.

Lincoln Foundation Announces $30,000 Design Competition

A new competition for designers, engineers and manufacturers of machinery of all types has just been announced by The James F. Lincoln Arc Welding Foundation of Cleveland, Ohio. The new $30,000 Mechanical Design Award Program offers $30,000 in 101 cash awards, as well as national recognition, for the best papers describing the mechanical design and construction of any type of machine or machine component which is designed for arc welded steel fabrication.

Several nonmetallic minerals producers have won prizes in past competitions.

German Cement Producers Observe Four Anniversaries

An occasion of interest to cement makers throughout the world was the meeting of the German Portland Cement Association held in Dusseldorf on May 14 and 15. This year the association is observing the 75th anniversary of the founding of its parent organization, the Society of German Portland Cement Manufacturers, which was located in Berlin-Karlshorst.

1952 is a festive year for German cement makers for three other reasons: the father of the German cement industry, Hermann Bleibtreu, began his experiments in making portland cement 100 years ago; the first merger of vertical kiln operations was effected 50 years ago; and the research institute of the cement industry was launched in Dusseldorf 30 years ago.

For these reasons three series of addresses covering the manufacture and applications of cement were scheduled in conjunction with the regular meeting of the association in Dusseldorf. Representatives of the cement and related industries in Belgium, Denmark, England, the Netherlands, Iran, Italy, Luxemburg, Norway, Austria, Sweden, the Saar, and Turkey were present.

Dr. G. Haegermann presented a resume of the 75-year history of the parent organization up to the merger of the three original cement associations.

A. C. Cronkrite Retires, G. S. Neel Made Executive Of Universal Atlas Cement

Fred T. Wiggins, vice-president and general sales manager of Universal Atlas Cement Company, recently announced the retirement of A. C. Cronkrite, who since 1937 has been vice-president, central region sales, Chicago, of this U. S. Steel Corporation subsidiary. Also announced by Mr. Wiggins was the election of George S. Neel, western region sales manager, as vice-president, central and western region sales, Chicago, effective September 1.

Mr. Cronkrite started his 52-year career with U. S. Steel subsidiaries as an office boy with the American Steel and Wire Company in Chicago. With this company he served successively as invoice clerk and cost accountant. Then, because his superiors there considered him too youthful to be a salesman, he transferred in 1907 to the Universal Atlas organization and became one of the pioneer group of cement men known in the company's annals as the "Class of 1907", which was destined to contribute much to the growth of both the company and the industry.

Starting as a clerk with Universal Atlas in 1907, Mr. Cronkrite was assigned in 1908 as salesman covering the western Wisconsin territory. He served in this capacity until 1914, when he became special representative for the company in Chicago. In the following year, he was appointed division sales manager for metropolitan Chicago and, in 1928, was advanced to assistant general sales manager, Chicago. Nine years later, in 1937, he was elected to the vice-presidency, the post from which he is now retiring.

Mr. Cronkrite is a member of the American Road Builders' Association and the Illinois Manufacturers' Association, and has served in various capacities in civic and business organizations.

The new vice-president, Mr. Neel, joined Universal Atlas in 1919 as a salesman covering the Des Moines territory. From 1924 to 1939 he served in various sales management capacities in St. Louis, Kansas City, and Des Moines. In 1939 he was promoted to sales manager, metropolitan Chicago territory, and in 1949, was appointed western region sales manager, Chicago. He served in this capacity until his recent election as a vice-president.

A. C. Cronkrite

George S. Neel

George F. Pettinos Senior Celebrates 90th Birthday

George F. Pettinos Senior, President of George F. Pettinos, Inc., of Philadelphia, will celebrate his ninetieth birthday on September 20th, and also the sixtieth year as active head of the company he formed in 1892.

He was born in San Francisco in 1862 and after attending Dickinson College and graduating from Lehigh University as mechanical engineer in 1887 he was employed by what is now Bethlehem Steel Corporation as chief engineer for five years prior to forming his own company. He is president of Bridgeton Sand Company, Cape May Sand and Gravel Company, Reading Sand Company, A. T. Harris Sand Company and Pettinos New England, Inc., all of which are engaged in the production of industrial sand. He is also president of a Canadian subsidiary, George F. Pettinos (Canada) Ltd., and Keystone Parting Company, manufacturers of water-proof powdered parting compounds for the foundry industry, in addition to which he is president of Sonittep Transportation Company.

He is one of the founders of the American Foundrymen's Society, a life member of the American Society of Mechanical Engineers, a member of the Franklin Institute, Academy of Natural Sciences, American Ceramic Society, The Engineers Club, The Contemporary Club and Lehigh University Club.

• This realistic display of quarrying chalk and clay for portland cement may be seen in the Geological Museum in London, England. Established as an outgrowth of the Geological Survey of Great Britain, founded in 1835, the museum is said to possess "the most comprehensive file of geological facts and information in the world". Note the display of quarrying is in the form of a diorama.

Pres. Truman Signs Bill Amending Earlier Ruling On Percentage Depletion

A last-minute action of the 82nd Congress on July 5 was the passage of H. R. 8271, incorporating an amendment which would make percentage depletion effective for all taxpayers on January 1, 1951, and would correct the fiscal year inequity on percentage depletion. President Truman signed the bill.

Under the terms of the Revenue Act of 1951, sand-and-gravel firms received percentage depletion, but this was applicable only with respect to taxable years beginning after December 31, 1950. Companies operating on a calendar-year basis got the full benefit of percentage depletion this year; but those on a fiscal-year basis were at a disadvantage in many cases.

Corning and Germundsson Named to New P.C.A. Posts

The appointment of Leo H. Corning as director of promotion and of Thor Germundsson as manager of the Structural and Railways Bureau of the Portland Cement Association was announced, effective August 1, by C. D. Franks, the Association's executive vice-president.

In his new capacity, Mr. Corning will supervise the promotion work of the Association's general office staff at 33 W. Grand Avenue in Chicago. Widely recognized as one of the nation's outstanding authorities on reinforced concrete construction, he has been a member of the Association staff for 23 years.

Mr. Corning received his B.S. degree in civil engineering from Case Institute of Technology. After duty in the Coast Artillery Corps of the U. S. Army during World War I, he began his wide range of work in the structural field as a designer with the M. A. Hanna Company of Cleveland. Subsequently he became a structural engineer for the Foundation Company of Chicago, and then an engineer of design for the Cleveland Water Department. Later he was engaged in private practice as an engineer and architect in Florida.

Mr. Corning joined the staff of the Association's Structural Bureau in 1929. He was appointed assistant manager of that Bureau in 1935 and manager in 1949—the post he held at the time of his appointment as director of promotion.

Mr. Germundsson, who succeeds Mr. Corning as manager of the Structural Bureau, joined the Association in 1930 after having served several engineering organizations as a designer of steel and concrete structures for buildings and subways. He was graduated from the University of Copenhagen and later received an M.S. degree in civil engineering from the University of Illinois as a Fellow of the American-Scandinavian Foundation.

A nationally-known authority on prestressed concrete, Mr. Germundsson also has a broad background of experience in the entire structural field. He is the author of a number of widely recognized books and papers on the design and analysis of reinforced concrete.

3 M's Half Year Sales Rise, Earnings Drop

Minnesota Mining and Manufacturing Company had sales of $88,074,407 for the first six months of 1952. This is a record and is nearly $3,000,000 ahead of 1951.

In spite of the increase in sales, net income declined to $7,287,400 equal to 91 cents a share as compared with $7,360,939 or 92 cents a share for the comparable 1951 period.

The decline, said the company statement, is brought about by the squeeze between rising costs and taxes on one hand and price ceilings on the other. Attention is being given to combat the squeeze by increasing efficiency, reducing costs, and broadening sales by improving existing products and developing new ones.

Dutch Producers Visit Plant Of Washington Brick & Lime

A group of foreign visitors recently inspected the installations and operations at the Washington Brick & Lime Company's facilities at Spokane, Wash. They were the guests of the firm at a barbecue. During their stay in Spokane they were also entertained by Gladding McBean & Company.

Members of the visiting group, all from the Netherlands, included the following: Henry Roskam, Netherlands embassy; J. Heemskerk, J. H. Timmer, F. W. Hisschemoller, J. J. Krygsman, and J. W. Santbergen.

• Myron A. Swayze, newly-elected member of the board of directors of the American Society for Testing Materials. Mr. Swayze was elected at the 50th anniversary meeting of the organization, which was held June 23-27 in New York City.

Death of Martin G. Basch Follows His Retirement After 38 Years at Easton

Martin G. Basch, chief engineer of the Eastern Car & Construction Company, Easton, Pa. since 1916, died on July 14 in that city. He was 71 years of age.

Mr. Basch, a native of Germany, received his education in that country.

Martin G. Basch

He carried degrees in mechanical and electrical engineering, and also earned the degree of electrical erector. His first position was that of mechanical engineer with Arthur Koppel of Berlin and Bochum, Westphalia, manufacturers of industrial cars.

In 1902 he was sent to the United States as a mechanical engineer for the Koppel interests. Three years later he assumed a similar post with the Ernest Wiener Company, remaining there until 1912. The following year he served as mechanical engineer for the American Car & Foundry Export Company of New York, N. Y., and from 1913 to 1916 he was similarly engaged with the M.H. Treadwell Company, also of New York.

His affiliation with the Easton Car & Construction Company began in July, 1916, when he became the firm's chief engineer. He retired from his duties on July 1 of this year.

American Potash & Chemical Building $300,000 Laboratory

Plans for the early construction of a research laboratory at Whittier, Calif., have been announced by the American Potash and Chemical Corporation. Peter Colfax, president of the firm, stated that the $300,000 structure, which is to be designed and built by the Austin Company, will be completed early next year.

American Potash and Chemical has launched a broadened research program, of which the new laboratory is a major part.

• This 2-cycle diesel engine recently installed on the portable Telsmith crusher of Haferman & Stark near Jordan, Minn., is saving the owners valuable setup time on each move to a new location. Watching the operation of the new engine, a Detroit GM 6-cylinder, are Howard Haferman and R. E. Murray, diesel engine manager of the Borchert-Ingersoll Company of St. Paul, Minn. They cite the compactness of the new engine—50 percent smaller than the old one—which permitted its installation directly on the rig, as the reason for the saving in time. Although smaller, the new unit stepped up production 20 percent.

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Barron Named to Manage Vermiculite Institute Dept.

L. A. Barron, an engineer with Vermiculite Institute of Chicago, has been named manager of the Institute's new Technical Service Department, according to E. R. Murphy, managing director. The new department was created at the Institute's recent annual meeting to do liaison work between the vermiculite industry and allied fields, as well as with governmental agencies and departments.

Mr. Barron has been with the Institute for the last three years. He was associated with the Bates & Rogers Construction Company on the Kingsbury, Ind., ordnance plant, and with the Sherwin-Williams Co., Chicago.

James Spence, who will take over Mr. Barron's former duties, will concentrate on building codes and represent the Institute on certain A.S.T.M. committees, handling inquiries and general work. Previous to his appointment with the Institute, Mr. Spence was with the U. S. Gypsum Company and the People's Gas, Light & Coke Company in Chicago.

May Lime Sales Decline 1st Qtr. Near 2,000,000 Tons

Domestic sales of open market lime were 676,457 short tons during the month of May, as compared with 686,369 tons for April, according to reports of producers to the U. S. Bureau of Mines. Refractory, chemicals, and other industrial uses increased slightly over the previous month, whereas agricultural use decreased 31 percent; and a slight drop in sales was noted for building use.

Ideal's "Keva II" Expedites Inter-Plant Transportation Over Eleven States

Not every cement company has one, but officials of the Ideal Cement Company call their company plane, the *Keva II*, "an effective tool" in the management of Ideal's far-flung operations.

The idea of airborne transportation for company personnel was suggested in 1945 by Claude K. Boettcher, who was at that time executive vice-president. Ideal's first plane was a twin-engine Beechcraft seating five passengers.

That Mr. Boettcher's hunch was a good one was soon apparent, for in 1946 the firm took formal possession of the sinter plant at Mobile, Ala., which since that time has been converted into one of the largest cement plants of the concern. Acquisition of these facilities involved more than 70,000 miles of travel over a three-month period, when the services of the Beechcraft were invaluable.

By 1947 the need for transporting larger groups of personnel in the executive, sales, production, engineering, and purchasing departments became apparent. Accordingly the *Keva II*, originally an Army C-47 transport, was purchased and converted for commercial use. The 14-passenger craft served the company well until 1950, when it was completely overhauled and supplied with additional equipment. Included are the most modern radio and automatic pilot equipment, a wire recorder, and safety features.

At the controls of the *Keva II* are Captain Forest Conover and Co-pilot Robert Vorbeck.

According to word from Gustave Papillon, director-manager of Ciment Quebec, Inc., St.-Basile, Que., Canada, this firm, located 28 miles from Quebec, has a daily output of 900 bbl. The company is presently installing two additional kilns and ball mills, and it is expected that annual production will be brought to 1,095,000 bbl.

Lime Sold by Producers[1] in the United States, First Quarter, 1952, April and May, 1952, by Types and Major Uses, in Short Tons

	Total, 1st Quarter, 1952	April 1952	May 1952
By types:			
Quicklime	1,555,795	499,689	513,606
Hydrated lime	431,403	186,680	162,851
Total lime[2]	1,987,198	686,369	676,457
By uses:			
Agricultural:			
Quicklime	9,610	8,437	7,276
Hydrated lime	48,974	34,897	22,743
Total	58,584	43,334	30,019
Building:			
Quicklime	47,271	17,807	18,683
Hydrated lime	206,768	85,260	79,764
Total	254,039	103,067	98,447
Chemical and other industrial:			
Quicklime	978,781	312,724	320,709
Hydrated lime	175,661	66,523	60,344
Total	1,154,442	379,247	381,053
Refractory (dead-burned dolomite)	520,133	160,721	166,938

[1] Also includes a small quantity of captive tonnage (6-7 percent of the total reported herein) to maintain comparability with the annual lime statistics. [2] Approximately 60 percent of lime produced is high-calcium and 40 percent high-magnesium.

Dr. A. V. Astin Appointed Standards Bureau Director After 20 Years on Staff

Dr. Allen V. Astin, formerly associate director of the National Bureau of Standards, was recently appointed director of the Bureau by President Truman. He had been serving as acting director since October, 1951.

A member of the Bureau's staff since 1932, Dr. Astin was until 1940 principally concerned with dielectrics and electronics. In 1943 he became chief of the Optical Fuse Section and chief of the Ordnance Development Division in July, 1948. He served in the latter post until May, 1950, when he was made associate director of the Bureau. At this time he assumed responsibility for the work of the Ordnance Development, Missile Development, Electricity, and Electronics

Dr. A. V. Astin

Divisions, as well as that of the Office of Basic Instrumentation.

Dr. Astin has received many scientific, technical, and governmental honors, and in 1947 was awarded His Majesty's Medal for Service in the Cause of Freedom (Great Britain).

Death Takes Milton Warner Nazareth Cement Chairman

Milton J. Warner, chairman of the board of the Nazareth Cement Company, Nazareth, Pa., died recently at the age of 79.

Mr. Warner, after graduating from Yale in 1894, formed the firm of Young and Warner with his father-in-law. The firm specialized in management consultant work and served many of the large utility companies in the east.

In addition to his position with Nazareth Cement Company, Mr. Warner was treasurer of the Securities Equity Company; a director of the Mountain Lake Corp., a Florida real estate firm; Grace-New Haven Community Hospital; and the Gaylord Farm Sanitarium. He had been a former town treasurer and a trustee of Rollins College.

• Bettsville residents get a 9-acre lake with their new park, donated by Basic Refractories.

Basic Refractories Donates 40 Acres for Town Park Site

Residents of Bettsville, Ohio, now have a new 40-acre recreational area, including a nine-acre lake, thanks to Basic Refractories Incorporated.

This company, one of the nation's largest producers of dolomitic granular refractories for the steel industry, consulted with town officials and state and county health officers about converting its quarry site into a public park.

Bettsville townfolk, many of them employees of Basic, immediately started their park project using air compressors, blasting tools, bulldozers, concrete mixers, jackhammers and 500 tons of dynamite furnished free of charge by Basic. Already 2,000 tons of the south wall of the quarry have been blasted off, graded, and covered with 1,200 tons of beach sand—a very fine sand resulting from Basic's processes at nearby Maple Grove.

Other Bettsville citizens are now working in spare time to build ball diamonds, picnic tables, grilles, bath houses, shelters, and fences for the park.

Lair Succeeded by Fogarty In Universal Atlas Post

Joseph R. Lair, district sales manager of the Indiana-Michigan territory is retiring after an outstanding career of more than 37 years with the Universal Atlas Cement Co. Auwell Fogarty, assistant district sales manager, has been appointed district sales manager succeeding Mr. Lair.

Mr. Lair began his career as salesman with Universal Atlas in 1915, and served in Iowa, southern and western Illinois, Nebraska, and Indiana. Transferring in 1927 to the Chicago office, he served there as assistant city sales manager, assistant district sales manager, Metropolitan Chicago sales manager, and Indiana-Michigan district sales manager.

Mr. Fogarty joined Universal Atlas in 1939 as a clerk in the Chicago office and became a salesman in the Des Moines territory in 1940. He joined the U. S. Navy in 1942 and was engaged in anti-submarine warfare. Honorably discharged from service in 1945 with the rank of lieutenant, he rejoined Universal Atlas the same year as a salesman in the Metropolitan Chicago territory. In 1948 he was appointed assistant to the vice-president, sales, western region, and in 1951 became assistant district sales manager, Indiana-Michigan territory.

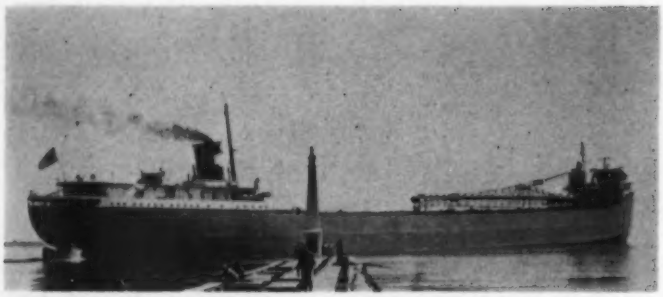
Westfield Appointed Chief Of Mines Bureau Division

Appointment of James Westfield, a mining engineer with 25 years of service in the U. S. Bureau of Mines, as chief of the Health and Safety Division of the Bureau at Washington, has been announced by Secretary of the Interior Oscar L. Chapman.

Mr. Westfield assumes the post held by J. J. Forbes until his appointment as director of the Bureau of Mines last November. In his new post, Mr. Westfield will be responsible for the Bureau's far-flung efforts to increase safety and improve health conditions in the mineral industries of the nation. Phases of these efforts include research and investigations designed to determine hazards and develop methods of guarding against them, training officials and employees in mines and mineral processing plants in accident prevention, first aid, mine-rescue procedures, and kindred subjects.

Mr. Westfield worked in coal and metal mines in Utah from 1921 until he joined the Bureau of Mines in 1928. He is a member of the American Institute of Mining and Metallurgical Engineers, the Mine Inspectors Institute of America, the Mining Institutes of Kentucky, Indiana, and Illinois, the National Mine-Rescue Association, and the veterans' organization of the last-named organization. He was appointed Bureau of Mines representative to the Executive Committee of the Coal-Mining Section of the National Safety Council in October, 1950.

A research laboratory has been opened in Evanston, Ill., by the Zonolite Company for work on the present uses of vermiculite and to explore new ones. Dr. George Ziegler will head the staff.



• The "Munson", newest U. S. Steel lake limestone carrier.

"John G. Munson" In Service As Lake Limestone Carrier

The steamer *John G. Munson*, recently completed at Manitowoc, Wis., for the U. S. Steel's Bradley Transportation Line of Detroit, made her maiden voyage on August 21.

The 666-ft. limestone carrier, biggest self-unloader ever built for Great Lakes shipping, sailed from Manitowoc to Calcite, Mich. It will go into service with the Bradley Fleet, hauling stone to lower lake ports for use by steel mills and chemical plants.

Launched November 28, 19951, the *Munson* completed her trial run on Lake Michigan on August 12. Aboard were more than 100 guests of Manitowoc Shipbuilding, Inc., 80-year-old firm which built the ship, and executives of Bradley and U. S. Steel.

Named in honor of the late John G. Munson, former vice-president of raw materials of U. S. Steel, the $6,500,000 carrier is built to haul 20,000 gross tons of stone at 16 miles an hour.

Phosphate Mine's Record For Safety Wins Award

The Florida Phosphate Division of International Minerals & Chemical Corporation has received a safety award from the Liberty Mutual Insurance Company for having completed 2,093,383 man-hours of work during the period from February 23, 1951, to June 19, 1952, without a lost-time accident.

The award was presented to R. B. Fuller, manager of International's Florida Phosphate Division by Earle N. Lashmet, Midwest divisional vice-president of Liberty Mutual Insurance Company, at a dinner meeting held at the International Park pavilion near Mulberry, Fla.

Similar awards have been made to International's Florida Phosphate Division by the Joseph A. Holmes Safety Association of Washington, D. C.; and the National Safety Council has given the division an award of honor for the same record.

Molten Sulphur to Be Moved By 1000-Ton Insulated Barge

A 1000-ton capacity insulated barge will carry molten sulphur from the Texas Gulf Sulphur Company at Moss Bluff, Tex., to the plant of the Consolidated Chemical Industries on Brays Bayou at Houston.

The barge contains a steel tank 167 ft. long which is insulated with Fiberglas making it, in effect, a giant thermos bottle. The sulphur, which is obtained from the mines in a melted state, is pumped into the tank and remains molten during the barge trip. The sulphur is removed by pipe lines and pumped to the plant for use in chemical manufacturing. This new system does away with the need for cooling the sulphur for shipment and then reheating it to a molten state before using.

This is said to be the first barge built to handle the molten material. It was built by the Bethlehem Steel Corporation at Beaumont for the Coyle Lines.

Once More Curiosity Is Fatal— To Out-Size Wild Feline

An unusual visitor came to a sad end, according to the *U. S. Steel News*, when it appeared at the Keigley quarry of the firm's Columbia-Geneva Steel Division's Utah operation. When employees at the plant saw a cougar standing only 300 ft. from the office, there was plenty of excitement. The animal, frightened by the noise its arrival had caused, bounded away; but when Carlyle B. Wall bayed like a dog, the lion took cover in a clump of sagebrush and froze.

Thomas M. Ewell, a haulage truck operator, telephoned his wife, who hurried to the plant with his gun. Yes, Mr. Ewell got the cougar, the first to be seen in this area. It weighed about 125 lb. and measured 6 ft. from nose to tail tip.

Courtesy of U. S. Steel News

• The 125-lb. kitty bagged at the Keigley quarry of Columbia-Geneva Steel Division.

Cement Plant Strikes End As Contracts are Signed In Eastern Industrial Area

Strikes which have caused widespread complications throughout the nation's industries continued to plague cement operations.

At the Universal Atlas Cement Company's plant, Northampton, Pa., the management and representatives of the United Cement, Lime and Gypsum Workers International Union (AFL) signed a new contract after ratification by the local. Another union local ratified a new contract with the Dragon Cement Company at Northampton. Negotiations between the Lehigh Portland Cement Company and the union were also ready for ratification.

At Allentown the Alpha Portland Cement Company signed a new contract with the union after the latter's approval of terms closely paralleling those recently accepted by union members and the Giant Cement Company.

Employees of the Penn-Dixie Cement Company, Easton, Pa., returned to their jobs, 600 strong, on July 23 after a 39-day strike. Agreements had not been reached, but resumption of negotiations had been cleared as the men ended their walkout.

Union representatives were also said to be discussing terms with the Lone Star Cement Corporation management at Nazareth, Pa.

Rapid Development Seen In Idaho Phosphate Field

A rapid development of the posphate fields in Idaho is taking place. Reports from the area indicate that the following projects are under way:

Monsanto Chemical Company at Soda Springs will start an electric furnace for recovering phosphorus from shale. Simplot Fertilizer Company has started construction of a superphosphate plant near Pocatello to convert the raw rock from its Fort Hall mine into fertilizing material.

Westvaco Chemical Division of Food Machinery and Chemical Corporation, is constructing a fourth electric furnace for obtaining elemental phosphorus. Westvaco is also continuing research into production of triple-strength superphosphate at Pocatello.

San Francisco Chemical Company has expanded its crushing facilities and will increase shipments of raw phosphate rock from its mine near Montpelier. Anaconda Copper Company, which operates the only underground phosphate mine in the area, has indicated interest in strip mine properties. Gates Bros. Fertilizer, Wendell, is operating in the area.

Leases have been taken by Western Fertilizer Company, and Central Valley Farmers Fertilizer Company.

Long-time employees of the Freeport Sulphur Company are being honored by having the company's vessels named after them. So far 26 vessels have been named after employees having more than 30 years' service each. It is planned to make the fleet a "floating honor roll".

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

PLANT operating articles predominated in the September, 1922, issue of PIT AND QUARRY. The Machias, N. Y., plant of the Machias Sand & Gravel Company was an outstanding operation, with a capacity of 3,000 tons daily. The deposit was a partly cemented bank of gravel 100 ft. high consisting of 60 percent gravel, of which 40 percent had to be crushed. A drag scraper fed the material to the plant hopper, and a belt conveyor took it to the revolving screens on top of the bin structure. Oversize went to a gyratory crusher and was returned to the screens by a bucket elevator. Sand was processed in three 60-in. tanks. Power for the entire operation was furnished by a central steam plant.

A smaller new plant, with a capacity of 1,000 cu. yd. daily, was operated by the Service Sand & Gravel Company at Rockford, Ill. This deposit had a very high sand content—60 to 70 percent—and only 15 percent of the gravel required crushing. A 3-cu. yd. walking dragline did all the stripping and excavating, feeding the material to a traveling field hopper. The hopper had a hinged grizzly which could be tilted by the dragline to dispose of boulders. A belt feeder discharged the material on a field belt conveyor. An inclined belt conveyor fed to a plant hopper followed by a rotary scalping and sizing screen. Both products went into bins, the coarse being fed to a gyratory crusher and back to the scalper, the fines to a wash box and rotary screen. Settling tanks were used for sand classification.

A new talc and soapstone plant operated by the Blue Ridge Talc Company, Inc., at Henry, Va., operated an open quarry which was drilled and blasted like crushed stone. In loading to cars this material was sorted into four grades. At the plant the material was crushed, dried, and then passed through a four-roller mill with air separation. The various grades went to bins over a two-tube valve bag packer.

The various products of this plant included red, yellow, and gray facing talcs, magnesium silicate, low lime for paints and polish, soapstone dust for plastic cements, asphalt filler, and composition flooring. A line of mineral black with a carbon content of 80 percent was also produced. This came from a deposit in an adjoining county and was processed with the same equipment.

An "automatic self-quarrying mountain" of marble at Calcite, Colo., was operated by the Colorado Fuel & Iron Company to supply its lime plant. The deposit was an almost vertical ledge of crystalline marble which was too shattered to be used for dimension stone. This mountain of rock was continually moving out onto the quarry floor in large blocks which crushed each other, so that little breakage was necessary before loading into cars. The explanation was that the inclined ledge of rock was riding on a layer of very dense slick red clay; and as the toe was removed, the rock slid down.

Other articles in this issue told how to remove flat stones from gravel, how to get best results from blasting, how to make a time study in quarry and plant, how to break up boulders, etc. Joseph Brobston, then vice-president of the Dexter Portland Cement Company, reviewed the history and development of waste heat boilers in the cement industry, with detailed information on their application and economies. Another article described the conversion of a worked out silica sand pit into a lake which provided swimming and fishing in Ottawa, Ill., an area not otherwise so favored.

English Opinions of American Machinery was the title of an interesting article by Alfred B. Searle of London, England, then a consultant to the pit-and-quarry industries. At that time, he opined, the chief assets of salesmen trying to sell American-made equipment in Great Britain were advertising and salesmanship, but they were woefully weak in understanding the conditions in that country and in adjusting themselves and their products accordingly. The chief difference between plants in Great Britain and ours, he stated, was in capacity; a large plant there would be a small plant here, and this fact must be kept in mind. Mr. Searle also said that in some cases the American machinery was too lightly built and too roughly finished to compete with domestic equipment.

Agricultural Limestone Division Of Pennsylvania Holds Meeting

THE open meeting of the Agricultural Limestone Division, Pennsylvania Stone Producers Association, was held on July 10, 1952, in the Hotel Penn-Harris, Harrisburg, Pa.

Chairman Leonard S. Fry explained briefly that the purpose of the meeting was to develop the facts on the proper use of liming materials in the Soil Conservation Program. Miles Horst, secretary of agriculture for Pennsylvania, was the first speaker. He stated that while Pennsylvania is recognized as a highly industrial area, the agricultural industry accounts for more than two and one-half billion dollars and is therefore one of the important factors in the state.

Lime, he said, is one of the many items which are necessary in soil improvement, but it is also the basic element in maintaining soil fertility.

J. Martin Fry, head of the extension service of Pennsylvania State College, spoke on the subject, *The Liming Program as Viewed by the Extension Service.* M. A. Farrell, director of the Pennsylvania agricultural experiment station, declared that lime is indispensable for soil fertility and conservation.

The Pennsylvania Bankers' Association was represented by Roy G. Schaull, who addressed the group on the subject, *A Banker's Appreciation of a Sound Testing Program.*

James Hutchison, vice-president of the County Agents Association, in an account of his work in soil testing, gave his unqualified endorsement of a new lime meter. Clyde Zehner, chairman of the Production and Marketing Administration, testified to the value of the use of lime, based on his early experiences in farming. He discussed the 1953 conservation program set up by Congress, which requires that farmers of each county be canvassed as to their conservation needs before funds are allocated.

Ivan McKeever, state conservationist, the Federal Soil Conservation Service, reviewed the various constituents of a permanent conservation practice in his address, *Soil Conservation Depends on Proper Liming Practices.*

During the second session, led by Dr. H. R. Albrecht, head of the department of agronomy, Pennsylvania State College, the speakers included James H. Eakin Jr., Dr. A. C. Richer, Dr. F. G. Merkle, and Dr. Higbee. Mr. Eakin exhibited equipment which was used in the early days for lime soil testing, and also showed a new lime meter. Dr. Richer (Pennsylvania State College) discussed the reasons for acid conditions in soils. Dr. Merkle showed, by means of charts, the effects of applying lime in combination with manure and phosphate to acid soils. Charts and maps exhibited by Dr. Higbee demonstrated the deterioration of our original calcium-saturated soils to highly acid soils and the part that is played by humus.

In his closing remarks Dr. Albrecht pointed out that with a rapidly increasing population, we must increase the productivity of our soils; and he emphasized that a proper soil-testing method will do much toward reaching that goal.

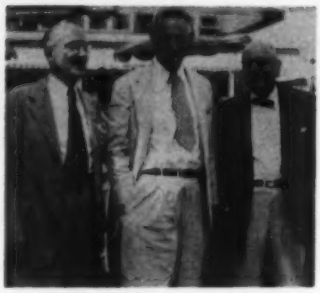
A new 11- by 356-ft. rotary kiln went into operation recently at the Thomaston, Maine, plant of the Dragon Cement Company, Inc. A smaller kiln was dismantled and scrapped to make way for the new unit, which has been under construction for the last year. The two kilns now in production have a capacity of about 900,000 bbl. each, an increase of approximately 50 percent.

National Crushed Stone Association Directors' Meeting

By WALTER E. TRAUFFER

THE board of directors of the National Crushed Stone Association held its annual midsummer meeting at The Homestead, Hot Springs, Va., on July 24, 1952. Attendance, as usual, was good; and many important decisions were made with respect to future activities of that body. On the preceding day there were meetings of the executive committees of the Association and of the Manufacturers' Division. The 1953 board meeting had been tentatively scheduled for the same location, but it was decided to investigate the possibility of holding it at the exclusive Seigneury Club near Ottawa, Ontario. The 1953 annual convention will be held at the New Yorker Hotel, New York City, the first week in February; the 1954 convention and machinery exposition will be held at the Conrad Hilton Hotel, Chicago, February 22 to 24, the week following the convention and exposition of the National Sand & Gravel Association and the National Ready Mixed Concrete Association. Several locations were considered for the 1955 convention, but it was decided to hold it at the Netherland Plaza Hotel, Cincinnati, Ohio.

In his annual report J. R. Boyd, administrative director, told of the excellent financial position of the Association and of the high level of membership in the Association and its Manufacturers' Division. He also described some of the things done to promote the interests of the Association and its members and of the industry. With respect to priorities assistance for MRO and minor capital additions, he said that the situation has become fairly well stabilized, as requests for assistance have become the exception rather than the rule. The industry apparently is having no trouble in obtaining the necessary equipment for continuing its operations. What the effect of the steel strike on this situation will be by the end of the year is, of course, a question.



A. T. Goldbeck (N.C.S.A. engineering director); Stirling Tomkins (New York Trap Rock Corporation); and J. A. Rigg (Acme Limestone Company).

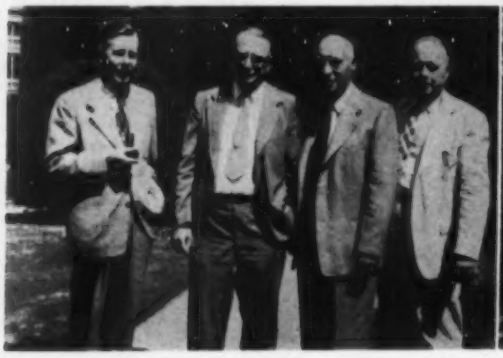
In reviewing developments with respect to price control, Mr. Boyd told of the formation of an industry advisory committee for crushed stone. In May of this year members of this committee met in Washington with representatives of other natural resource industries to advise in connection with the development of a tailored regulation for a rather large group of industries. It is reported that progress is being made in the preparation of such a regulation.

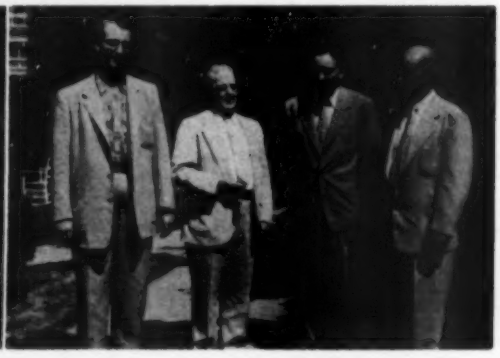
There is, said Mr. Boyd, at present little to report on wage and salary controls beyond what has already been reported in releases to the membership. With respect to the Walsh-Healey Act, there has been much activity. Bureaucratic and arbitrary administration of the Act suffered two important setbacks in the first six months of the year. There is now some hope that the time is not far distant when a prevailing minimum wage for the crushed stone industry will be determined under the Act, and we can be more reassured now that if and when such a determination is made, it will have to be done in accord with the Administrative Procedure Act, and the findings will be subject to judicial review.

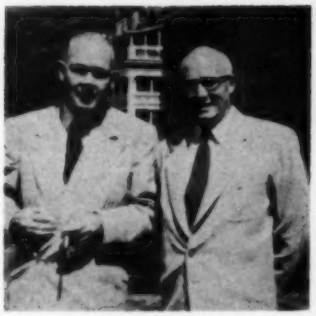
In reporting on Association activities Mr. Boyd told of the development of the group insurance plan for member companies. It was voted at this meeting to refer the matter to the executive committee. He also told of the very important contribution that the *Accident Review*, edited by C. A. Gustafson, chairman of the Accident Prevention Committee, is making to safety in the industry, but pointed out that all companies are not co-operating by sending in reports. The value of this Association service, he said, is largely in proportion to the

Nelson Severinghaus (Consolidated Quarries Corporation); A. W. McThenia (Acme Limestone Company); O. M. Stull (Liberty Limestone Corporation); and Bruce S. Campbell (Harry T. Campbell Sons Corporation).

L. A. Eiben (Northern Blower Company); Wayne W. King (W. S. Tyler Company); Arthur Goff (Wallace Stone Company); and Russell Rarey (Marble Cliff Quarries Company).







Oscar E. Benson (General Crushed Stone Company) and Don L. Williams (Virginian Limestone Corporation).

• The Manufacturers' Division was well represented at this meeting. Standing: Wayne W. King (W. S. Tyler Company); Cott Farrell (Easton Car & Construction Company); Horace C. Krause (Columbia Quarry Company), president of N.C.S.A.; Lawrence Eiben (Northern Blower Company); Ben F. Maloney (American Cyanamid Company); and J. B. Terbell (American Manganese Steel Division). Seated: J. Craig McLanahan (McLanahan & Stone Corporation); Irwin F. Deister (Deister Machine Company); J. R. Boyd, administrative director of N.C.S.A.; and Miss Beatrice Gay, secretary of N.C.S.A.

number of companies who report each month.

A. T. Goldbeck, engineering director, gave a progress report of the work being done under his direction. He reminded his listeners that this engineering work is being done with the idea of being as helpful as possible to member companies, that certain broad general activities must be maintained for the benefit of all, and that the value of such work is sometimes difficult to appraise. It has been difficult, said Mr. Goldbeck, to keep an adequate laboratory staff, but this problem has been partly solved at least by using students from Antioch College (this writer's Alma Mater) who alternate three months of work and three months of study under that institution's well-known plan.

Mr. Goldbeck reported briefly on some of the many investigations made which covered a wide range of products, problems, and applications, including practically every purpose for which crushed stone is used. He also reported that some members are using the Association's method of concrete proportioning with great success. All four Short Courses for salesmen which have been held to date have been very successful. It is planned to hold the next one in January, 1953, if arrangements can be made.

In his report to the board, J. E. Gray, field engineer, told of his visit to the U. S. Engineers' laboratory at the Bay of Fundy. He commented that anyone visiting this project would come away sold on the value of air entrainment for resisting the action of freezing and thawing. In describing his work,

(*Continued on page* 92)

Right above: J. H. Odenbach (Dolomite Products Company, Inc.) and son, John M. Odenbach, with B. R. Maloney (American Cyanamid Company) in the center.

Right: G. D. Lott, Jr. (Palmetto Quarries Company); and L. J. Boxley and L. J. Boxley Jr. (Blue Ridge Stone Corporation).

Below: A group of the ladies present at the meeting, enjoying luncheon al fresco.

PENN-DIXIE

SWITCHES FROM DRY TO WET PROCESS AT KINGSPORT, TENNESSEE

Licks dust problem, jumps capacity 10 percent by replacing six 125-ft. rotaries with one 500-ft. kiln--

By WILLIAM M. AVERY

another ON THE SPOT report

WITH the firing up of a new wet-process rotary kiln during August of last year, the Penn-Dixie Cement Corporation completed the first major stage of a long-range program of complete plant rehabilitation at Kingsport, Tenn. The new 12- by 500-ft. kiln has attracted a good deal of attention because it is the largest unit operating in the Western Hemisphere, but the installation, wholly apart from this unique feature, is equally noteworthy due to achievements in respect to fuel economy, elimination of a serious dust problem, and the replacement of outdated facilities.

The new kiln replaces six 8- by 125-ft. dry-process kilns which had been in operation for some years. Output of clinker has been increased about 10 percent (to approximately 4,200 bl. per day), and fuel consumption has been decreased over 28 percent—from 1,400,000 B.t.u.'s per bbl. with the dry-process kilns to about 1,000,000 B.t.u.'s per bbl. with the new kiln.

The cement plant was one of the first important industries to be established at Kingsport. Since 1911, when the mill was placed in operation, the city has grown considerably, and the proximity of the plant to the business section and to residential areas became an increasingly serious problem from the standpoint of dust control. In planning a rehabilitation program for the mill, Penn-Dixie resolved to comply in every possible way with Kingsport's dust abatement ordinance. This factor was largely responsible for the decision to convert from dry process to wet, and it also led the company to equip the new kiln with one of the most modern and effective dust collection systems in the entire cement industry. It utilizes a system of Western Precipitation Multiclones to trap and recover coarse particles

The compartment tube mill which dries and grinds minus ¾-in. coal for direct-firing the kiln.

and a Cottrell electrical precipitator of the same make for the recovery of fine dust from the exhaust gases. The system is designed for an efficiency of 97.5 percent.

Raw Material Storage and Proportioning Immediate rehabilitation work at Kingsport will be completed late this year with construction of entirely

Key men in the Kingsport organization lined up for this picture before the much-prized Portland Cement Association safety trophy. Left to right, front row: Robert Russell, mill foreman; Walter Nunnelee, kiln supervisor; M. T. O'Connor, plant superintendent; J. W. Stiles, personnel and safety supervisor; Burgess King, storekeeper; J. P. Fogle, mill foreman; Fred Thacker, packhouse foreman. Left to right, back row: James Rittenhouse, electrical engineer; Bill Nall, plant engineer; Damon Boggs, chief electrician; W. V. Deakins, chief clerk; C. H. Pickens, chief chemist; Steve Anderson, repair foreman; Joe Lane, shale quarry foreman.

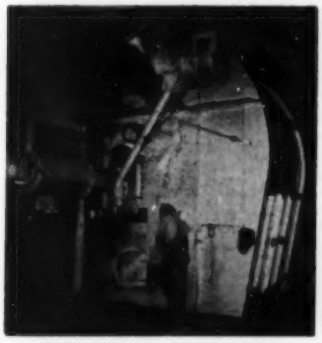
Above: Aerial view of Penn-Dixie Cement Corporation's mill at Kingsport, Tenn., showing the new kiln and other facilities installed in connection with a recent and drastic modernization program.

A closeup of the new 12- by 500-ft. rotary kiln. This is the longest cement kiln now operating in the entire Western Hemisphere.

new facilities for the storage, handling, and proportioning of raw materials. Shale is quarried on property adjoining the mill, while limestone is shipped in by rail from Penn-Dixie's quarry at Marcem, Va., about 11 miles from Kingsport.

The new raw material storage and proportioning system is presently under construction. It is designed to handle approximately 300 t.p.h. of limestone. Purchased sand and iron ore will also be unloaded on the same trestle to storage, and provision is made for crushing and handling shale as required from the adjacent shale pit.

The hopper cars of crushed rock will be unloaded from the storage track over the railroad trestle into a track hopper, and fed by a vibrating feeder onto a 42-in. belt which delivers to a Pennsylvania Model CF 13-44 Impactor, driven by a 300-hp. 900-r.p.m. motor. It will be operated in closed circuit with two 5- by 12-ft. Ty-Rock screens. Crushed material from the Impactor is delivered by a 30-in. belt to the screens, from which the undersize is carried by a 24-in. belt to a 26,200-ton covered storage building.



The firing end of the kiln. Note the telescoping burner pipe suspended from the monorail at the left.

Trucks from the shale quarry will dump into a vibrating feeder which will discharge to a Pennsylvania No. 3650 Reversible Dixie Hammermill driven by a 125-hp. 900-r.p.m. motor. The hammermill is rated at 60 t.p.h. in open circuit and discharges to an 8- by 8- by 16-in. elevator, thence by 18-in. belt conveyor to a storage area holding 5,950 tons.

The sand and iron ore are unloaded directly on the trestle into storage areas having a capacity of 2,450 tons of sand and 3,530 tons of iron ore.

All of the above storage is contained within a structure 282 ft. long by 90 ft. wide by 23 ft. high, of which 186 ft. will be roofed at this time. Movement of stored material is accomplished by an 8-ton Champion crane operating on 90-ft. span. This crane has been moved from the company's former plant at Portland Point, N. Y. It will serve five proportioning bins, two devoted to limestone, one to shale, one to iron ore, and one to sand, each having a capacity of approximately 70 tons.

From the proportioning bins material will be withdrawn over Schaffer Poidometers onto an 18 in. cross belt having a capacity of approximately 100 t.p.h. This bel

in turn discharges to an 18-in. belt 720 ft. long which feeds the raw mill bins. A schematic layout of the storage and principal equipment is shown.

Raw Grinding As a part of the work of converting from dry to wet process, two new 8- by 12-ft. Allis-Chalmers ball mills, each operating in closed circuit with two 4- by 6-ft. single-deck F-300 Ty-Rock vibrating screens, were installed for preliminary wet grinding. They are fed individually with F. L. Smidth table feeders. Mills are charged with 60,000 lb. of forged steel grinding balls ranging from 1½ to 3½ in. in diameter.

The product of the ball mills goes by screw conveyor to a catenary trough from which the tube mills are fed.

Four existing 5½- by 22-ft. tube mills were converted for wet grinding, and two additional 6- by 22-ft. mills were installed to assure desired secondary grinding capacity, although only five of the mills are actually required under most conditions. All of these mills both receive and discharge material through the trunnions. The converted units are charged with 60,000 lb. of balls ranging up to 1 in. in diameter, while the two 6-ft. diameter mills carry somewhat larger balls of about the same total weight.

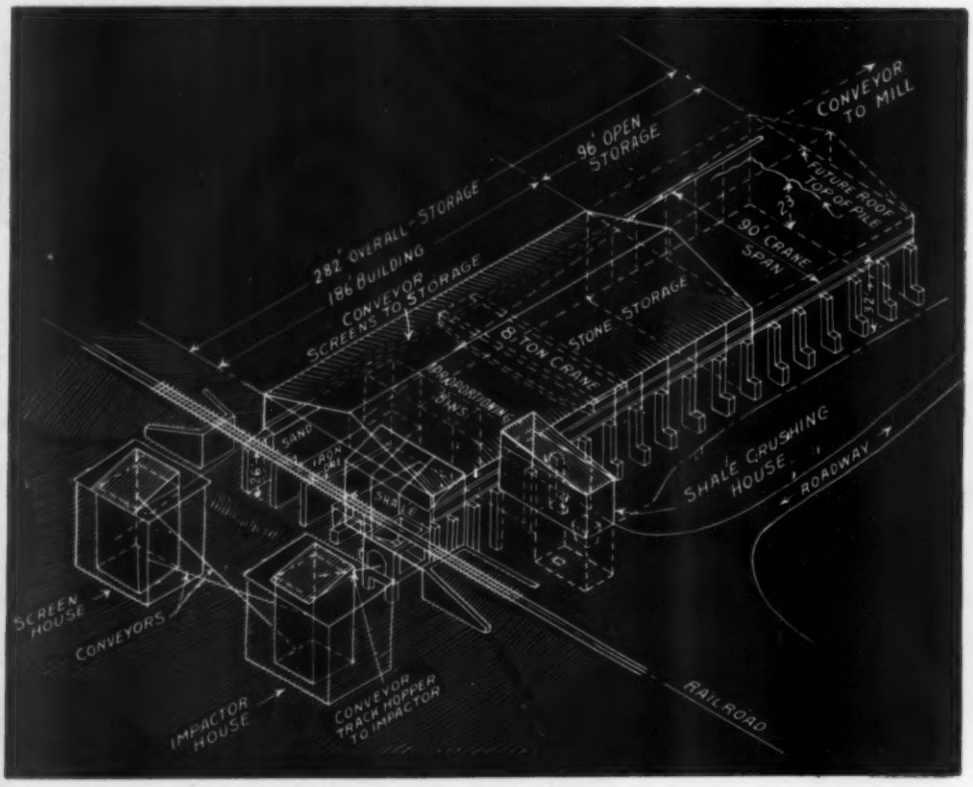
All six secondary mills discharge into a screw conveyor, which in turn delivers the slurry to a sump. Samples taken automatically from the screw conveyor are checked for water content, and corrections are made at the preliminary mills to maintain the desired 38 percent slurry. Two 5-in. Wilfley pumps move the slurry from the sump to any one of six 1,200-bbl. correcting tanks. F. L. Smidth pneumatic agitation is used for mixing, and provision has been made for recirculating and transferring slurry to and from any desired combination of tanks.

Two 5-in. Wilfley units pump corrected slurry to either of the two kiln feed basins, and two 4-in. pumps of the same make are available for pumping from the feed basins to the feeder above the kiln. The feed basins, which are used and refilled alternately, hold approximately 4,000 bbl. each, and they are equipped for both mechanical and air agitation.

Isometric drawing of the proposed new facilities for storage, handling, and proportioning of raw materials.

Coal Mill One of the somewhat unusual features of the new facilities at Kingsport is the use of a compartment tube mill for direct firing, although several Penn-Dixie plants have been equipped in this manner. Minus ¾-in. Virginia coal is ground to about 70 percent passing 200-mesh in an F. L. Smidth airswept Tirax mill. The mill has an outside diameter of 6 ft. 6 in., and its total length of 28 ft. 3 in. is divided into a drying compartment 9 ft. 6 in. in length, and two grinding compartments 8 ft. 6 in. and 10 ft. 3 in. in length. The graded charge, consisting of balls ranging from 2-in. down to ¾-in. diameter, has a total weight of about 38,000 lb.

The mill receives air from the kiln hood at about 600 deg. F., and in turn delivers to the kiln a mixture of coal and air at a temperature of about 200 deg. F. A pusher-type feeder with a variable speed drive feeds coal to the mill from a 122-ton overhead bin, and the rate of feed is adjusted automatically by

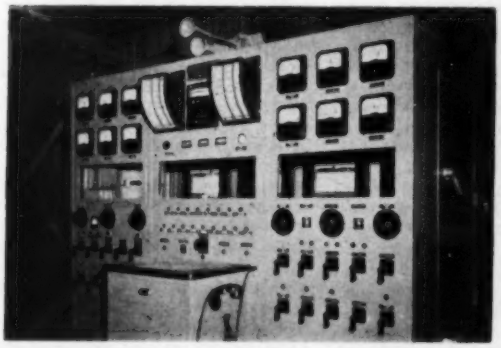


means of a manometer to maintain a constant coal level in the mill. A rotary dryer, formerly used in preparing coal for the old firing system, has been kept in operating condition for standby service as a preliminary dryer in connection with the new system. It is used only during excessively rainy periods.

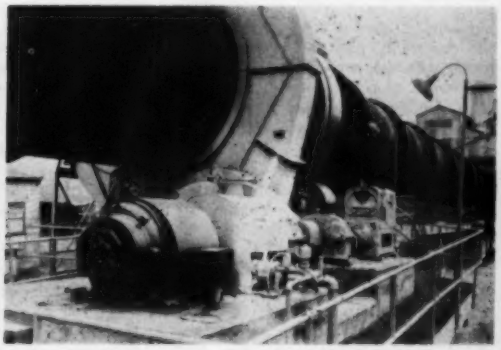
Kiln The 12- by 500-ft. kiln was built and installed by F. L. Smidth. The all-welded shell rides on six floating tires, and is set on a slope of ½ in. per ft. There is a 70-ft. chain section which starts 12 ft. from the feed end. Both the telescopic burner pipe and the segmented nose ring are of heat-resistant metal. The hot zone is lined with basic brick for a distance of 40 ft., followed by 6-in. 70 percent alumina brick, graduating to 50 percent alumina and low-temperature firebrick for the remainder of the kiln.

Clinker discharges from the kiln into a 7- by 44-ft. Fuller inclined-grate cooler, and is then elevated and discharged into four 10,000-bbl. storage silos. These silos and a 900-ton bin for the storage of gypsum, all of which were built as part of the modernization program, straddle a reclaiming belt onto which desired amounts of clinker and gypsum are fed by means of three Jeffrey Waytrol feeders. Two of these units operate on rails in order to serve the four clinker silos. Facilities beyond this point (*i.e.* the finish mill, the packhouse, and the cement storage silos) were not affected by the rehabilitation program.

The kiln drive consists of a 200-hp. squirrel-cage motor, a Falk double-reduction gear reducer, and a conventional pinion and girth gear, with a 44-hp. gasoline engine as a standby drive for use in the event of a power failure. A Dynamatic eddy-current coupling between

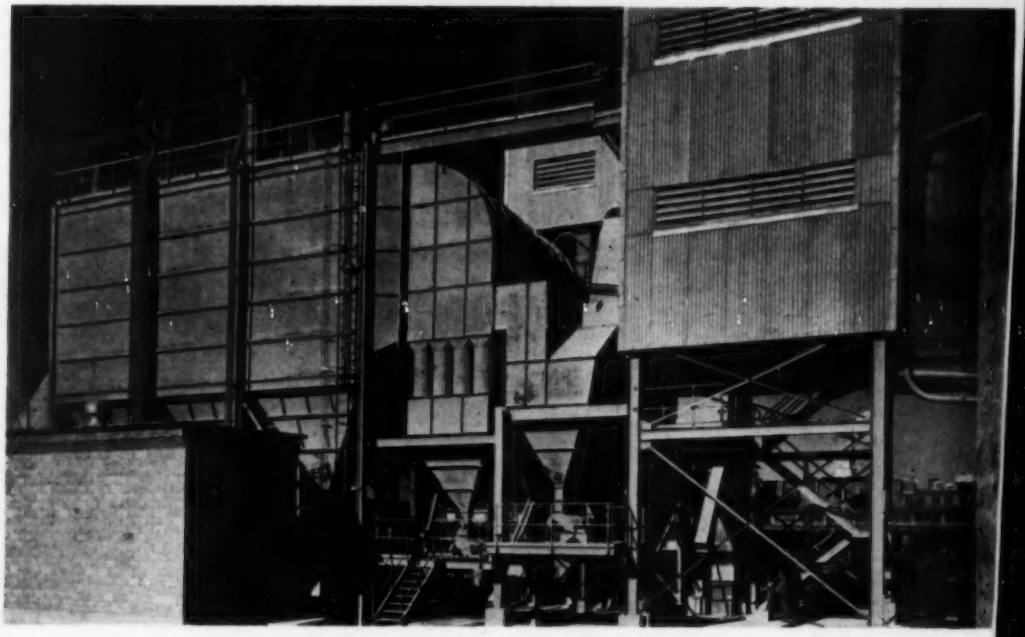


A closeup of the cubicle in which are centralized all the controls for the operation of the kiln.



A view of the drive pier, with the 200-hp. squirrel-cage motor at the left, and the 44-hp. standby gasoline engine at the right.

Below: The dust collection system, consisting of both mechanical and electrical collectors in series, provides unusual selectivity in re-feeding recovered dust to the kiln.



the motor and gear reducer provides for infinite speed variation, the torque of the clutch being varied by changing the excitation. The slip difference between the driver and the driven member is used to generate torque between the elements of the clutch in accordance with the relative speeds of the output member and the source. The coupling is water-cooled in order continuously to dissipate the heat which is generated whenever the clutch is slipped below its full synchronous speed rating.

Although couplings of this type have been widely used in other industries for a number of years, their use in the cement industry and more particularly for kiln drive service, is believed to be a relatively recent development. In addition to providing speed control service with infinite variations of output speed, they absorb torsional impulses and vibrations and permit either gradual or quick acceleration of loads. Since only a small amount of power is required for excitation, such clutches lend themselves readily to the use of any type of primary remote control.

Because of these considerations, eddy-current couplings were applied at Kingsport not only to the kiln drive itself, but to such closely related operating units as the coal feeder ahead of the Tirax mill, the induced-draft fan, the screw conveyor for returning dust, the slurry feeder, and the clinker cooler. In the case of the smaller drives in the range of 1½ to 10 hp., use was made of Dynamatic Adjusto-Spede units, in which motors and eddy-current couplings are combined.

Secondary air for the kiln is passed through the bed of clinker in the grate cooler as a means of preheating, and the kiln gases are exhausted through a 225-ft. brick-lined stack by a Buffalo fan. A 350-hp. synchronous motor drives the fan through an eddy-current coupling, changes in the draft being effected from the burner's platform by adjusting the speed of the fan.

Control The new kiln and the various units of equipment which are tied in with the kiln have been provided with every conceivable type of automatic control and recording device. A potentiometer indicates and records flue gas analysis as determined by a Cambridge O_2 analyzer. A Brown Radiamatic pyrometer measures the lining temperature in the hot zone, and this information, as well as the speeds of the kiln, the slurry feeder and the coal mill feeder, is recorded on a 4-point recording potentiometer.

Brown instruments both indicate and record gas temperatures as measured by thermocouples, and a Brown Pyrovane alarm provides a warning in the event that discharge gases reach excessively high temperatures. Hays vertical-type gauges show draft at the kiln hood, as well as pressures across the coal mill and below the clinker cooler.

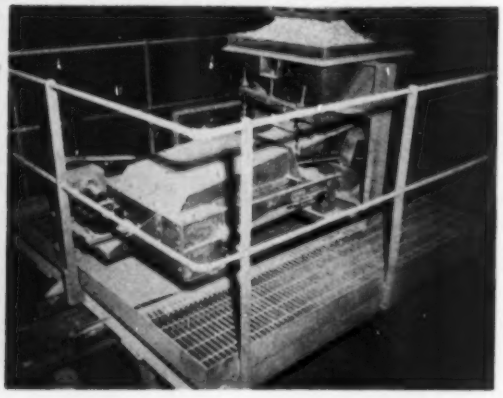
The speed of the slurry feeder and the rate of dust return, as well as the rotational speed of the kiln itself, are pre-set and thereafter varied simultaneously by operating a single control. Controls, switch gear, ammeters, and the various indicating and recording instruments are all centralized in an F. L. Smidth dustproof cubicle.

Dust Collectors The Kingsport installation is said to be a good example of the application of combined electrical and mechanical dust-collecting to cement kilns in which the high alkali content of the raw material presents a problem in connection with re-utilizing the dust. In this instance a portion of the Multiclone product, which represents 70 to 80 percent of the total dust loss from the kiln, is re-fed. The CMP unit, which stands 40 ft. high and covers 1,260 sq. ft. of ground, was built and installed by Western Precipitation Corporation. The Multiclone, which is the first unit beyond the dust chamber, is a type 24VD, size 48-4. The Cottrell consists of three units and three sections—the first two sections being equipped with rod curtain electrodes, and the third with pocket electrodes.

The dust-handling system provides for an unusual degree of selectivity in re-feeding recovered dust to the kiln. Material from the hoppers under the dust chamber from the Multiclones and from the first section of the Cottrell precipitator is collected by a system of screw conveyors and discharged into a storage bin. Dust from the third section of the Cottrell is conveyed to a sec-

Left: The two 4,000-bbl. slurry feed basins are equipped for both mechanical and air agitation.

Below: A view in the tunnel beneath the clinker and gypsum storage silos, showing one of the combination weigher-feeders.



ond bin, while material from the second section may be routed to either bin.

At the time we visited Kingsport several weeks ago experiments were still in progress to determine the amount of dust which may be properly returned to the kiln feed. When dust is re-fed to the kiln, carefully controlled amounts are blended with the slurry in a mixer ahead of the kiln feeder. As explained in the discussion of control features, this operation is synchronized with the speed and feed rate of the kiln.

Mortar Cement Along with the new kiln installation and the general modernization program, extensive work has also been done on the mortar plant at Kingsport. New facilities which have been installed in an existing building include a Raymond 6-roll high-side roller mill and a Raymond flash-drying system. The product fed to the mill consists of minus ¾-in. limestone, which is reduced to about 90 percent passing 200-mesh. The material is classified by means of Whizzer separators mounted above the mill, then collected and pumped to the finish mill by means of a Fuller-Kinyon pumping system.

Cement Storage The cement storage system consists of 24 flat-bottom concrete silos with a total capacity of about 90,000 bbl. Recent construction work included the building of a new 10,000-bbl. high-gypsum silo for use in connection with the production of masonry cement. The packhouse facilities, which include several multiple-spout St. Regis packing machines, have not been changed. However, the construction of a new packhouse and a new finish mill is planned.

Credits Tidewater Construction Company was the general contractor for the work at Kingsport. Penn-Dixie's own engineering staff collaborated with F. L. Smidth & Co. in designing the new facilities. The slurry basins and the silos for storing clinker, gypsum, and high-gypsum cement were constructed by E. C. Machin. The Rust Engineering Company built the stack.

Penn-Dixie operates eight plants in all for the production of portland cement. The company's four Pennsylvania plants are located at Nazareth, Penn Allen, Bath, and West Winfield; two in Tennessee are located at Kingsport and Richard City; and the remaining two are at Clinchfield, Ga., and West Des Moines, Ia. Executive offices are maintained in New York City, while the general operating, engineering, and accounting offices are at Nazareth.

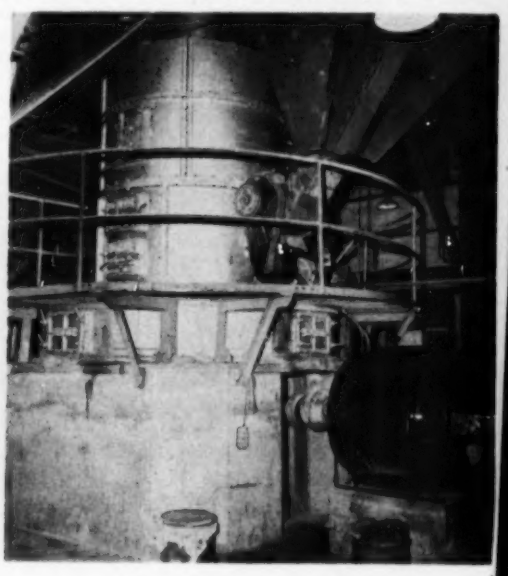
Officers of the corporation are Victor N. Roadstrum, chairman of the board; B. W. Druckenmiller, president; George Kilian, secretary-treasurer; E. P. Newhard, vice-president and operating manager; and Fred L. Doolittle, vice-president and general sales manager. J. H. Chubb is service bureau manager, and D. S. Browder is traffic manager.

Johan Norvig is director of engineering, Floyd H. Compton is chief engineer, L. C. Hawk is research director, and W. P. Gano is chemical engineer. Southern operations at Kingsport and Richard City, Tenn., and at Clinchfield, Ga., are under the supervision of M. L. Silcox, assistant operating manager.

Some 200 men are employed in Penn-Dixie's operations at Kingsport, and an additional crew of about 50 works at the Marcem quarry, which produces limestone for Kingsport. M. T. O'Connor is plant superintendent, C. H. Pickens is chief chemist, Bill Nall is plant engineer, and John W. Stiles is personnel and safety supervisor.

One of the two 5-in. pumps which move slurry from a sump in the raw mill to the correcting tanks.

Right: The high-side roller mill in the revamped mortar cement plant. This unit operates in circuit with a flash-drying system.



Below: The four-spout packing machine used for bagging mortar cement.

How to Protect Your Wire Rope From Excess Wear and Weather

By L. E. DRESSLER
Field Engineer,
A. Leschen & Sons Rope Co.

HERE'S a subject that never grows old. It's never printed too often, and never recited too much. The better the care and protection you give wire rope, the better it will serve you. That means you reduce your costs of operation—and who can turn that down these days?

When rope is primarily used out of doors, as it is in quarrying operations, it is exposed to the elements, as well as to abrasive action. Some of this abrasive action is unavoidable, and in that case, you simply want to be sure you are using a high-quality, long-wearing rope of the type or construction best suited to the application.

Reducing Normal Abrasion Quality always pays off in a product like wire rope. A high-quality rope naturally possesses high abrasion resistance because it is made of finer steel. It also has higher resistance to breaking, either by direct pull or by frequent flexing. That point is demonstrated at the Leschen plant, where every coil of wire used in rope manufacture undergoes rigid testing for both tension and torsion. There is a difference in "raw" wire, and when wire is discovered which doesn't meet top-standard requirements, it is always rejected. If imperfect wires are stranded into the rope, the rope quality suffers and it wears faster.

Normal abrasion can also be reduced by frequent lubrication—using a thin coat of adhesive lubricant. A study of the operation and the layout may also suggest ways to reduce abrasion. Sometimes it is advisable to increase the load, within safe limits, and reduce speed as a means of lessening abrasive action. If an operator gets into the habit of starting equipment too fast, he might better slow down, in order to reduce "dragging" in the sheaves or blocks. The result will be a gain in rope service.

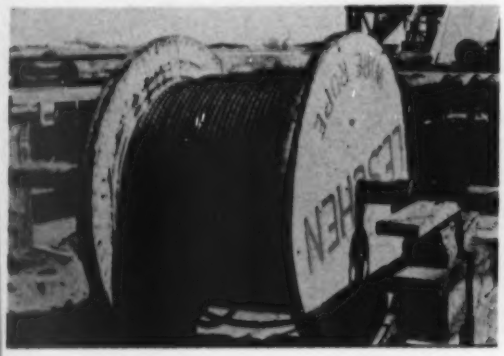
Blocks and sheaves should always rotate freely. Keep bushings well lubricated, so that lines won't be dragged over sluggish equipment. Soft sheaves or sheaves that are too small will show rope treads, indicating that they are unnecessarily hard on rope. These treads mesh almost perfectly with the strands of the rope that made them, but when a new rope is installed, it will be entirely out of mesh, and the ridges of the treads will become cutting edges with great ability to do damage. This damage will show up first in scratches or cuts. Scratching or scrubbing may also result from poor spooling on drums, a condition which will develop if the rope rolls away from or over the next wrap on the drum. Tight, even spooling, especially on the first layer, reduces wear.

On any line that runs from a drum through a series of sheaves, the portions of the rope that rest on the sheaves and on certain critical points on the drum absorb far greater stresses than the rest of the rope at the moment when the load is fully applied. If the rope returns to its original position for each lift, these parts are bound to wear faster. The solution is to cut off at regular intervals a length of rope sufficient to move these parts from the critical points. Better utilization of the length of the line will result.

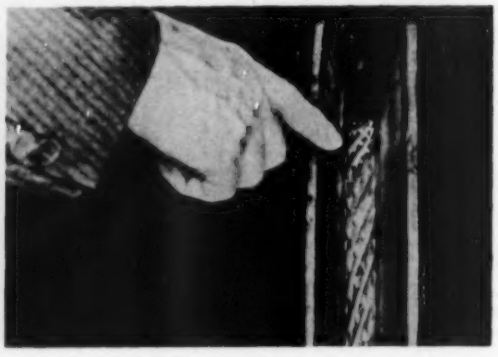
Proper wire line anchors which will avoid kinks or sharp bends in dead lines are well worth while. Never pull line around any object having a diameter less than that of proper sheaves recommended for the size of line being used. There are a number of good deadline anchors available.

Reducing Abnormal Abrasion A common cause of abnormal abrasion is careless handling. Prying the rope, either to move the reel, or to move wraps closer together on a drum, should be avoided. Also avoid sudden, severe stresses. Many lines on service jobs are abraded by being dragged across rocks or other objects. Sometimes lines are unnecessarily allowed to touch the ground between the storage reel and the rig. Especially under warm weather conditions when the lubricant may be tacky, the rope picks up sand, which acts as a file on the sheaves. This should be avoided whenever possible, even if it is necessary to change the layout. Savings will justify the change.

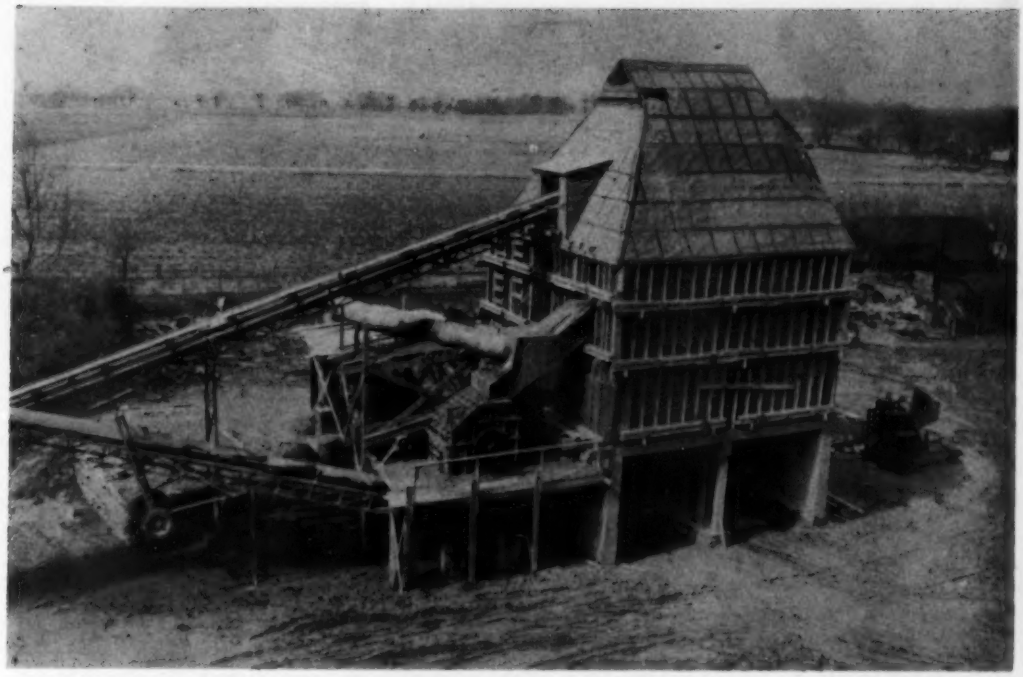
(*Continued on page* 92)



Two good ways to protect your wire rope are illustrated here. First, mount the reel on timber blocks or a reel stand. Second, order your rope covered with a special protective coating to seal out dirt, air, and moisture.



Worn equipment frequently is a source of unnecessary rope wear. For example, worn sheaves like this one may cause crushing and abrasion.



A general view of the rebuilt plant of the Krueger Quarry at Winchester, Ill. The new bin has a capacity of 250 to 275 tons, and is a major factor in speeding up loading operations.

Elimination of Loading Delays Helps Illinois Agstone Firm Double Volume

ON THE SPOT

PARTNERS James Dwyer and J. C. Bremer, who own and operate the Krueger Quarry at Winchester, Ill., have several interesting theories about the agricultural limestone business in which they are engaged, and they have applied these theories

By WILLIAM M. AVERY

to their own operations with some interesting results. Their No. 1 theory, and the one which they have perhaps worked hardest to apply, is that the men who haul and spread their material should in logic be the most enthusiastic and effective salesmen they could possibly have.

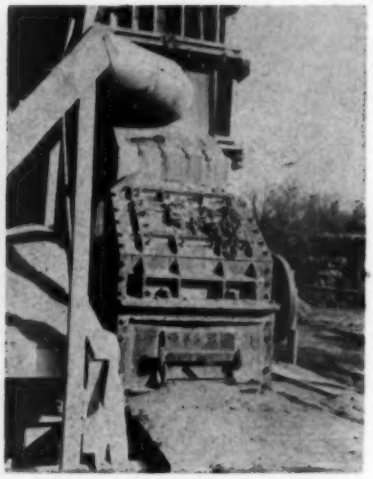
Recognizing about a year and a half ago that this was not the case, they scrutinized their entire reltionship with haulers and soon established where they themselves were missing the boat. The sore spot wasn't hard to find. During spreading seasons it was a common occurrence to have as many as 25 trucks lined up at the plant in the morning, and it often took the entire day to get them all loaded and on their way. End result: a group of haulers who were hardly in a mood to sell agstone at all; and least of all Krueger agstone. In short, it actually appeared that far from utilizing a prime opportunity to create goodwill, the company was often generating deep resentment.

Since the material has a high affinity for moisture, open stockpiling was not the answer, and close figuring on selling price, necessitated by competitive conditions, made covered stockpiling economically unsound. With these two possibilities eliminated, the only practical solution remaining was to install larger bins and to substantially increase pulverizing capacity. This approach, as it turned out, not only necessitated the virtual rebuilding of the plant, but also required the replacement of many items of major equipment.

To some extent, of course, the partners were gambling that sales would increase if the loading bottleneck could be broken, since the elimination of waiting time at the plant could obviously be converted into more trips per truck. They also reasoned that the assurance of immediate loading should give them a preferential status among haulers in the area, and that this might eventually open new outlets for their material.

Experience seems to have established that both of these premises were entirely sound. The expansion program, completed a little over a year ago, has jumped capacity to around 600 tons per day, just about double the output of the older plant. This increased output is not only being marketed successfully, but is going to a considerable extent into surrounding counties at distances up to 60 miles from the quarry site. During peak periods, as many as 90

Much of the drilling is done during off seasons and during other periods when the plant is down, in order to provide year-round employment for the basic operating crew.



The new hammermill averages 80 t.p.h. with little circulating load. The duct above admits heat generated by the diesel engine drive.

trucks have been loaded in a single 14-hr. day without any of the irritating delays that used to occur so regularly. Although the 1951 season wasn't even started until some time in April, total volume for the year ran somewhat over 60,000 tons.

The partners also believe that in order to retain the services of competent men, it is of the utmost importance that year-round employment be made available. To implement this policy, operations have been set up around a permanent nucleus of three men, who are assured of 12 months' employment, even though the normal operating season is only about 7 months. During the peak of the spreading season as many as three additional men may be hired, but these individuals are taken on with the clear understanding that the work is temporary.

To keep the nucleus crew employed on a year-round basis, major maintenance and heavy repair jobs are handled during off seasons. Operations in the quarry proper have also been planned so that a great deal of the stripping and primary drilling can be taken care of during off seasons, or when the plant is not operating for a day or two. This practice necessarily means that blast holes are put down long before they are actually used, a procedure which is made possible by the fact that the deposit has almost no tendency to back break. Thus four rows of holes can be drilled, then an interval of 12 ft. left and four additional rows put down, without any fear of losing holes in the second series when those in the first are shot.

The 15-acre quarry lease contains around 150,000 tons of high-quality limestone per acre. Material suitable for use as agricultural limestone varies from 36 to 40 ft. in depth, and within these limits an average calcium-carbonate equivalent of 95 percent can be maintained. The stone has a definite brownish color which has sometimes been a handicap in making initial sales. To get around this difficulty, the company has a standing offer to refund the purchase price if a new customer is dissatisfied after trying the Krueger material in comparison with white agstone.

Overburden averages around 30 ft. in depth, and stripping is done entirely with bulldozers using D-7 and D-8 Caterpillar tractors equipped with angle blades. As mentioned above, all stripping is done during the off season, and the material can generally be disposed of by pushing it approximately 100 ft.

Drilling is done with a Gardner-Denver wagon drill, for which compressed air is supplied by a 365-c.f.m. Jaeger portable compressor. A two-bench system is now in operation, with a top lift of 18 ft., a bottom lift of 24 ft., and drill hole spacing of 7 by 14 ft. Since the formation has no seams, one or two rows of horizontal holes are also drilled at the toe and shot with gelatin.

The formation is relatively soft, and one set of bits can drill up to 20,000 tons before gauge loss becomes serious. For some months the company has been using a new type of Gardner-Denver drill steel which incorporates an accurately machined groove in the drill shank to accommodate the scaling ring. The ring, which can readily be replaced when necessary, effects a tight seal around the air tube, the forward position of which is chromium plated to prevent corrosion and assure free rotation. The "ring seal shank", as it is called, is credited with an important gain in drilling speed at the Krueger Quarry, since it delivers blowing air directly to the bit at high pressure.

Blasting charges consist of 5 percent of No. 2 Gelamite, then 10 percent of No. 2 Hercomite, and finally No. 4 Hercomite to within 4 ft. of the top of the hole. All procedures related to blasting have recently been the subject of intensive study, and for some time all shots were made under the supervision of a representative of the Hercules Powder Company. Yields have increased considerably as a result of the experimental work done during this period, and under average conditions it is now possible to bring down approximately 5 tons of rock per pound of dynamite. Last year total production was 6,000 tons more than the year before, but total dynamite cost was *down* about $1,200.

Fragmentation has also shown considerable improvement, perhaps largely due to the use of millisecond delays. One recent shot brought down about 18,000 tons of stone, with only 32 oversize pieces which required secondary drilling and blasting. Improved breakage is believed to be largely responsible for an almost incredible reduction in hammer costs. Prior to the intensive work on shooting, hammer re-

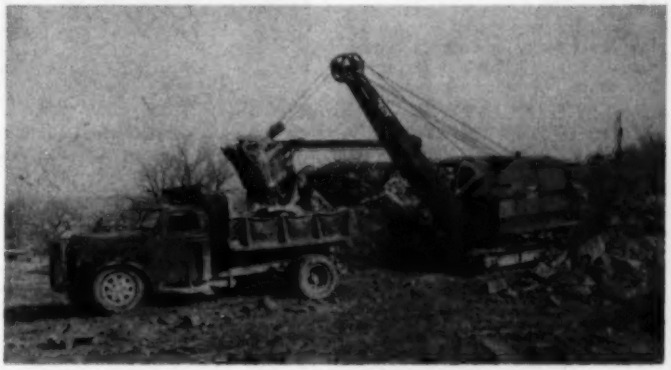
placement ran close to 30 cents per ton. Now it ranges from 3 to 5 cents per ton.

Two shovels, a 1¼-cu. yd. American and a ¾-cu. yd. Bucyrus-Erie 22-B, are used interchangeably for loading at the quarry face. The latter machine, purchased last winter, is used primarily for clean-up work and for reclaiming during periods of bad weather. For the present short haul a 3-ton G. M. C. dump truck can supply the plant, but a Ford unit is also available for use when needed.

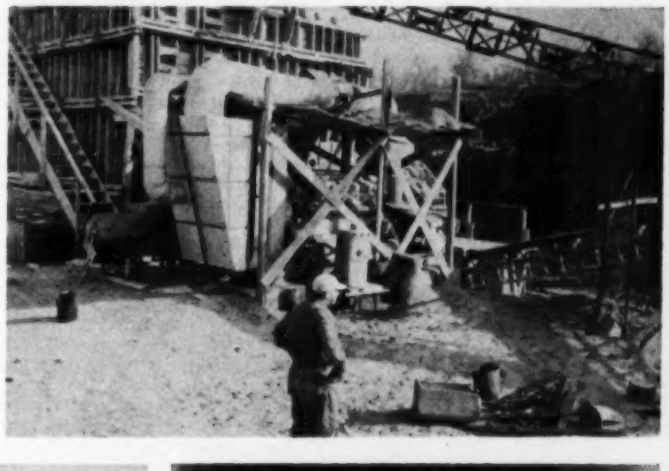
The primary crusher, a 24- by 36-in. Gruendler jaw, is fed by an 8-ft. apron feeder. When the stone from the quarry is reasonably dry, the opening of the jaw is maintained at about 4 in., but during wet periods it is closed down to 3 in. Under normal conditions the primary crusher reduces about 15 percent of the feed to dust. The crusher is driven by a Cummins diesel engine, which also drives a 25-kw. direct-current generator for operating the conveyor drive motors.

Stone drops from the primary onto a 24-in. by 120-ft. inclined belt conveyor which operates at a speed of 195 ft. per min., discharging over a 4- by 12-ft. Simplicity screen mounted above the finished-product bin. This unit is equipped with a ball tray to prevent blinding, and the 10-hp. totally-enclosed motor which drives it is the only unit in the plant proper which is supplied with R. E. A. power.

Plus $\frac{9}{16}$-in. stone drops from the screen into a metal chute which discharges into an American ACS-4, Type UR hammermill. This unit is equipped with 36 40-lb. hammers and has 1¾-in. grates. It is driven by a 500-hp. Caterpillar D-12 diesel engine. Heat generated by the engine is piped into the chute just above the hammermill for the purpose of drying the stone. A 5-ft.



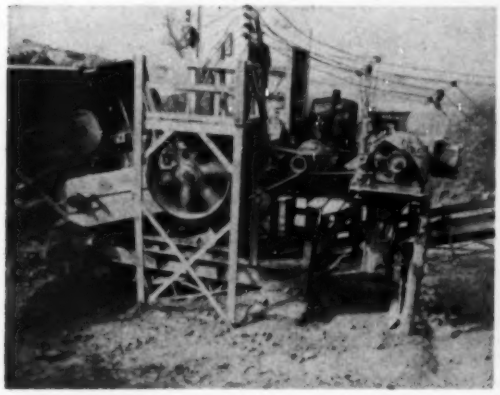
The smaller of the two shovels used interchangeably for loading stone at the quarry face.

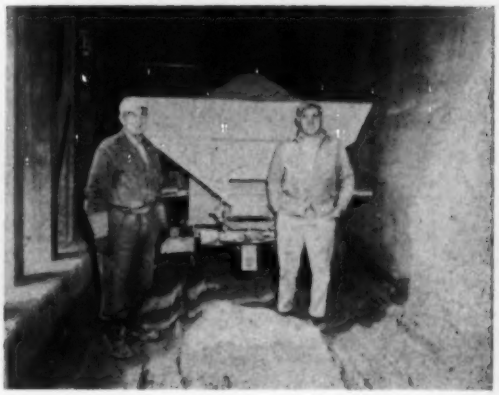


Right: The 500-hp. diesel engine which drives the hammermill and supplies heat for drying the stone.

Below, left: A view of the 24- by 36-in. primary jaw crusher which under normal moisture conditions reduces about 15 percent of the feed to dust.

Below, right: Left, James Dwyer, partner, and one of the haulers who has become an enthusiastic agstone salesman since loading delays were eliminated at the Krueger Quarry. Haulage unit is a Baughman Type SK spreader which handles 7½ to 8 tons per trip.





diameter 18-blade fan revolving at 1,200 r.p.m. imparts the necessary velocity to the air. The Case starting engine which serves the big drive is generally operated for about an hour before the main unit is started to bring the fuel temperature up to 100 deg. F. Under full load the main drive consumes about 14 gal. of fuel per hr.

For short periods up to about 4 hrs. the new hammermill has produced at rates as high as 120 t.p.h., and output easily averages about 80 t.p.h. under all conditions. With new hammers there appears to be almost no circulating load. As the hammers wear, the circulating load is allowed to build up to around 10 percent before the hammers are replaced. The hammermill discharges onto an 18-in. by 50-ft. belt conveyor which closes the circuit by returning the stone to the main conveyor.

The 365 c.f.m portable compressor which supplies air for primary and secondary drilling.

The storage bin is of timber construction and is fully enclosed to keep the material dry. It is about 21 ft. square inside, and the height to a leveling-off point is about 20 ft. Full capacity is from 250 to 275 tons, an amount which seems to provide for most ordinary loading demands. Two roadways below the bin, each served by five 16- by 24-in. clamshell gates, provide for simultaneous loading of two trucks. Electric vibrators assure free flow of the material.

The quarry property near Winchester was opened around 1926, and was subsequently operated by the late Albert Krueger until his death about 10 years ago. The present operators lease the property from Mr. Krueger's widow. Operations are entirely under the direction of Mr. Dwyer. The other partner, Mr. Bremer, is actively engaged in the operation of quarries at Sorento and Litchfield, Ill.

National Crushed Stone Assn.

(*From page* 81)

he said that every visit to a member company's operations is made for the purpose of arriving at definite and factual solutions of his problem. He briefly reviewed some of the numerous such visits made during the year, the varied types of problems studied, the solutions arrived at, and the benefits accruing therefrom to the producer.

One company was faced with the problem of having its stone condemned for highway work because of lack of soundness. The stone had a spotty record. Some structures built with it stood up, while a few others showed deterioration. Investigation showed that the stone in the deposit varied in quality in various areas and the answer was to develop a method of selective quarrying, which was done successfully.

In another instance a limestone quarry made a shipment of stone to a ready-mixed concrete company. The concrete supplied by the latter to an important project turned out to be of poor quality. Investigation showed that there were pockets of shale in the deposit which closely resembled the stone in color and in other ways; and when the face was blasted, this shale became intermingled with the stone and contaminated a large quantity of it. The only solution for the producer was to watch the face more closely to detect such pockets and also to inspect the muck pile after every shot. A number of other instances were cited by Mr. Gray to illustrate the scope and variety of his work.

Irvin F. Deister (Deister Machine Co.), chairman of the Manufacturers' Division, reported the satisfaction of this group with the manner in which the 1952 convention and machinery exposition were handled, making it the best in history. He also praised the spirit of co-operation among all involved which made this possible. Russell Rarey (Marble Cliff Quarries Corp.), chairman of the percentage depletion committee, told of the recent removal of the inequities existing in the original law. About 30 percent of the crushed stone industry, he said, had been penalized by the calendar year specification of the law. All producers can now obtain the benefits of percentage depletion beginning January 1, 1951. Otho M. Graves, chairman of the Convention Arrangements Committee, gave a brief summary of the program of the New York convention in 1953. Of particular interest is the fact that Bishop Fulton J. Sheen may be obtained as speaker at the Monday luncheon, and Miss Vivian Kellems for the Wednesday luncheon.

Protecting Wire Rope

(*From page* 88)

Protection from Elements A common condition in operations where wire rope must be kept handy for replacement purposes, is to have reels of rope outdoors—exposed to rain, dust, and other elements. When this is necessary, a few simple precautions will pay extra dividends. Do not allow the reel to stand directly on the ground or even on a cinder covered area. Mount it on a reel stand or on heavy timbers; otherwise the weight of the rope may cause the reel flanges to become embedded and the rope to rest on the surface. This condition practically guarantees rapid corrosion. A temporary make-shift covering of corrugated iron or any similar material that happens to be handy is helpful; so is good lubrication. But there is only one way to be sure that complete protection is provided. That way is to order your rope with a special protective lepro coating that seals the rope completely from air and moisture. When you get a good, factory-applied coating that forms a hardened, protective surface, your problems on this score are over.

When referring to elements, a word of caution on lubricants should be added. Don't use one that may contain acids, strong chemicals, or alkali; rope life can be shortened as a result. If you have any questions as to the right type of lubricant to use, consult a wire rope manufacturer for recommendations.

An occasional reminder on the do's and don't's of wire rope use and care always helps to reduce wear. That is the purpose of this article; but don't stop exploring the subject further.

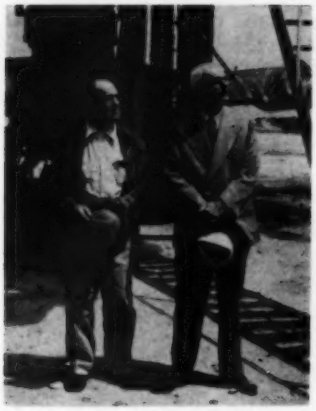
John A. Philbrick Dies On Plane After Crash

John A. Philbrick, president of the Giant Portland Cement Company, died August 2 when a seaplane in which he was riding nosed over during a landing in Cuttyhunk Harbor, Mass.

Mr. Philbrick was dead when he was removed from the plane. Authorities believe his death was due to heart attack.

At his death Mr. Philbrick was secretary of John A. Philbrick and Bros., Inc., New York, and president of the Giant Portland Cement Company and its subsidiary the Carolina Giant Cement Company.

Wet Cyclone Recovers 4 T.P.H. Of Needed Fine Sand from Waste



• Charles Pomeroy, concrete technician, and Harold Fox, president of the Hartman Concrete Materials Company.

another ON THE SPOT report

An aggregates operation known as the Fox Plant, set up near Bakersfield, Calif., to produce materials meeting the rigid specifications of the Bureau of Reclamation on the Friant-Kern Canal now has become the chief source of commercial-material supply for the Hartman Concrete Materials Company of Bakersfield. When the original assignment of the plant was finished, a year or two ago, the facilities were acquired by the Hartman company. Located at a deposit along the Kern River, the plant has a capacity of approximately 150 t.p.h., half of which is sand.

Coarse-aggregate processing is simple and conventional, involving only a scrubber and spray-equipped screens. The sand circuit is, however, rather interesting. Sand passing the screens is flumed to a Wemco screw classifier, the flume being fitted with riffles for gold recovery. In making sand, the screw loses a considerable volume of valuable fines in the overflow at the lower weir, along with the dirty water, floating chips, and the like. Recovery of this wanted fine sand, especially in the No. 50- to No. 100-mesh range, posed a problem before a Cottrell 25-in. Whirlcone was installed in the circuit. This unit now reclaims the fine sand to a high degree. Surface water of the tailings overflows to waste, the balance settling to feed a Wemco 6-in. sand pump. The pump lifts these tailings to the rubber-lined Cottrell Engineering Company Whirlcone located above the discharge end of the screw, dropping the reclaimed sand into the final foot or so of the helix. This blends the fines into the composite sand and allows most of the migratory water to escape before it discharges to a conveyor. Thus the cone is, in a sense, in closed circuit with the screw.

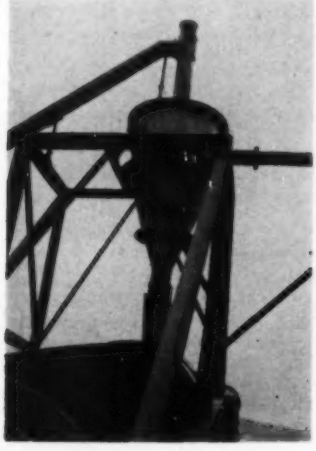
The conveyor inclines and operates as a radial stacker, piling the sand for drainage into four heaps.

According to Charles Pomeroy, concrete technician for the Hartman organization, the cone not only recovers the fines required for well-balanced sand, but adds about 4 tons of sand hourly to the plant's output. The value of this added tonnage alone more than pays for the operation of the pump and amortization of the pump-cone-piping installation.

Much of the output is used by the company in its ready-mixed-concrete plants in Bakersfield, Taft, and the surrounding oil fields. Harold K. Fox is president.

The Whirlcone, manufactured by the Cottrell Engineering Co., Los Angeles, is distributed nationally by the Georgia Iron Works, Atlanta, Ga.

• The 25-in. wet cyclone discharges the reclaimed fine sand directly into the upper end of the spirals. At the right is the inlet pipe; the waste water outlet is at the top.



A general view of the Fox plant near Bakersfield, Calif., operated by the Hartman Concrete Materials Company. The sand screw is in the center; the cone is mounted above the discharge end of the screw; and the pump is at the lower left.

Oregon R.M.C. Concern Acquires Sand-Gravel Plant

Ready Mix, Inc., of Ontario, Oreg., recently acquired the Ontario Sand and Gravel Company, which had been operated for many years by P. W. and J. W. Williams. Heading the new organization are Lawrence Garside and James Robertson, both of Portland, and William Mott, a former employee of the sand-and-gravel company, who will serve as secretary and manager. Mr. Robertson and Mr. Garside operate another plant in Portland.

According to Mr. Robertson, president, some new equipment has been installed at Ontario, and additional machinery will be purchased locally.

WASHINGTON NEWS LETTER

another P.Q. exclusive

By S. HERBERT UNTERBERGER

THE general word going around now about the forthcoming election is that "it's a horse race". Objective analysis of the personalities and personal positions of the candidates for President indicates more areas of conformity than disagreement. Similar analysis of the platforms of the two parties reveals that they are adroitly worded documents, but, like most platforms, they are equivocal, designed to attract the maximum and alienate the minimum of voters.

By a curious turn of events the principal appeal of the Republicans, who are generally regarded as the party of the hard-headed businessmen, is heavily emotional. This is found in its stress on the "trend toward Socialism", and in its candidate who exemplifies high morals and ideals and who commands a tender spot in the hearts of most Americans. On the other hand, the principal appeal of the Democrats, who always seem to attract the theoreticians and the do-gooders, appears to be almost exclusively practical. This is found in its stress on the economic difficulties of the nation when the party rose to power, contrasted with the recent prosperity, the economic dangers involved in making a change, and also by its candidate who is reported to be an efficient and honest administrator of a civil, rather than a military, organization.

It would be an obvious oversimplification of the situation to suggest that the voter will be faced with the choice of voting his "emotions" or his "economics," but this choice will certainly receive prominence in the campaign. This is not to say that "emotions" are all on one side and "economics" all on the other, but rather that the parties will rely on these forces in widely differing proportions in appealing to the voter who has not already made up his mind fully.

In great part, it is because emotions are so heavily involved that predicting the outcome of elections is such a hazardous occupation. With respect to emotions there are no statistical data which can be relied on. Hence their influence must be estimated or guessed at. Certainly, one of the principal reasons the professional predictors went wrong so unanimously in 1948 was that they seriously overestimated the emotional appeal of the oft-repeated call for "a change".

Statistical data reflecting the economics of the situation are far more accessible. They will be used with great abandon in the coming campaign. Before that begins it may be worth-while to get an unexaggerated picture of the situation. There is no doubt that the nation is more prosperous now than it was in 1932. There is a legitimate question of "How much more prosperous?"

One of the best measures of national prosperity is the "Gross National Product", that is the total value of all the goods and services produced in the nation. It is likely that this measure will be referred to extensively. The following set of data is sure to be used:

Year	Gross National Product Billions of Dollars
1929	103.8
1930	90.9
1931	75.9
1932	58.3
1933	55.7
1934	64.9
1935	72.2
1936	82.5
1937	90.2
1938	84.7
1939	91.3
1940	101.4
1941	126.4
1942	161.6
1943	194.3
1944	213.7
1945	215.2
1946	211.1
1947	233.2
1948	259.1
1949	258.2
1950	284.2
1951	329.2
1st quarter 1952 (annual rate)	339.4

From these data, it appears that currently gross national product is more than three times what it was in the very prosperous year 1939 and almost 6 times the 1932 level. Using these data, unrefined further, it has been claimed that the nation is 6 times as prosperous as it was 20 years ago.

The obvious difficulty with this measure is that it is expressed in dollars. Because of inflation an increasing number of dollars does not reflect a similarly increasing volume of goods and services. A more accurate representation of the nation's changing prosperity is found in the following data in which the gross national product is expressed in dollars of a constant value:

Year	Gross National Product Billions of Dollars of Constant (1939) Value
1929	85.9
1930	78.1
1931	72.3
1932	61.9
1933	61.5
1934	67.9
1935	73.9
1936	82.9
1937	87.9
1938	84.0
1939	91.3
1940	100.0
1941	115.5
1942	129.7
1943	145.7
1944	156.9
1945	153.4
1946	138.4
1947	138.6
1948	143.5
1949	144.0
1950	154.8
1951	167.3
1st quarter 1952 (annual rate, partially estimated)	170.0

From these more refined data, it appears that, currently, gross national product in constant dollars is less than twice the 1929 level and just three times the 1932 level. Thus, it may be claimed that in the last twenty years national prosperity tripled.

For the nation as a whole, this claim has validity, but it can not be concluded that the nation's citizens individually experienced so rapid a rise. And it is the citizens who do the voting. Here it is necessary to refine the figures further and determine the per capita share of the gross national product in constant dollars, as shown below.

Year	Gross National Product Per Capita Dollars of Constant (1939) Value
1929	705
1930	634
1931	583
1932	496
1933	489
1934	537
1935	581
1936	655
1937	682
1938	647
1939	698
1940	757
1941	866
1942	961
1943	1066
1944	1134
1945	1096
1946	979
1947	962
1948	979
1949	965
1950	1020
1951	1084
1st quarter 1952 (annual rate, partially estimated)	1088

This further refinement of the data indicates that the per capita share in the gross national product increased only about 50 percent since 1939 and somewhat more than doubled since 1932.

An even better measure of the

(*Continued on page* 99)

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Plant Near Detroit Now Producing 700 Cu. Yd. of Beslite Daily

Process Expands Raw Clay By Down-Draft Sintering

By WILLIAM M. AVERY

AT Livonia, Mich., just outside the city limits of Detroit, the Light Weight Aggregate Corporation is now in sustained full-scale production of an expanded clay lightweight aggregate which is being marketed under the trade name Beslite. Three-shift operations are yielding approximately 700 cu. yd. of blended material daily. This output is being sold to block plants in the Detroit area for use in the production of lightweight concrete masonry units.

In appearance and physical properties Beslite closely resembles haydite, but the method of manufacture is entirely different. Instead of firing in a rotary kiln, as is the case in the manufacture of haydite, Beslite is made by firing a mixture of raw clay and coke breeze on a down-draft sintering machine. With the latter process production costs are said to run considerably less, and it has the additional advantage of being equally effective and economical for either continuous or intermittent operations.

The clay used in the production of Beslite is dug from a pit adjacent to the plant, and hauled by truck to a covered storage area which can accommodate approximately 3,200 cu. yd. of the material. The pit operation is conducted on the basis of two 8-hr. shifts to supply enough material to run the plant for 24 hr. One man, alternately operating the shovel and the single dump truck used for hauling, ordinarily comprises the entire pit crew. When it is filled to capacity, the storage area holds enough material to maintain full-scale production for about four days in the event that operations in the pit are shut down due to weather or other factors. Actually the practice is to dump two consecutive loads of raw clay directly into the hopper which feeds the plant, then place one load in storage for supplying the plant on the third shift. A tractor-bulldozer is used for shoving stored material into the feed hopper.

An apron feeder and an inclined apron conveyor transport raw clay from the hopper to a Jeffrey Mud Hog crusher. This unit, which reduces the clay to minus ¾-in., is an impact crusher equipped with traveling breaker plates for crushing wet, sticky material. It operates in closed circuit with a single-deck 4- by 8-ft. Simplicity vibrating screen, so that all material which fails to pass a ¾-in. opening is returned to the crusher for further reduction. Feed to the screen is by means of an apron conveyor, while the relatively small return flow to the crusher is handled by a belt conveyor. The sized material is discharged into a 7-cu. yd. hopper which provides the small amount of surge capacity required for subsequent operations.

• Melvin F. Cruzen, plant superintendent, weighs a sieve analysis sample.

Coke breeze is also crushed and screened in preparation for blending. This material is stored in an open stockpile and fed to the processing circuit by means of a truck, a bulldozer or a front-end loader. It ranges up to 1 in. in size, and the practice is to stockpile a sufficient quantity during the summer months to carry the plant through the winter. The handling circuit consists of a hopper, a Jeffrey-Traylor vibrating feeder, and an inclined belt conveyor which discharges onto a double-deck 2- by 6-ft. vibrating screen. The top deck of the screen serves to scalp off the small amount of plus 1-in. particles which the material contains, thus eliminating the scrap metal frequently present in the coke breeze. This fraction, amounting to perhaps a wheelbarrow load per day, is wasted. The lower deck of the screen splits the flow at 3/16 in., oversize material going to a Jeffrey hammermill for reduction, while the throughs drop onto a belt

• A general view of the Light Weight Aggregate Corporation's clay sintering plant, located near Detroit, Mich. Raw clay is stored in the building at the left.

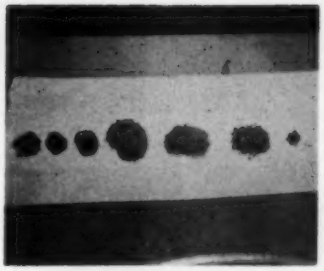
conveyor and are conveyed to a 10-cu. yd. surge hopper located next to the clay hopper referred to above. Since the hammermill operates in closed circuit with the coke screen, all the material which leaves the circuit is minus 3/16 in.

Separate belt feeders under the two surge hoppers feed a fixed ratio of clay and coke breeze onto an inclined belt conveyor, known as the charging belt, which is located under the surge hoppers. The feeders are driven from the tail shaft of the charging belt and are therefore fully synchronized. Gates which control the amount of material flowing out of the surge hoppers are adjusted so that about 7 percent (by volume) of coke is added to the clay. Since the main feed belt has a variable speed drive controlled from the burning platform, the operating speeds of the two belt feeders are automatically adjusted in accordance with total feed requirements.

Each of the surge hoppers is equipped with a high-level and a low-level Butler bin indicator. These units start and stop the two raw material feeders at the input end of the processing circuits as a means of automatically balancing the preparation of clay and coke breeze with the actual rate at which these materials are fed to the sintering machine.

The clay and coke are mixed with a small volume of water to form the pellets which are fed to the sintering machine. This operation is accomplished with a 5-ft. diameter by 10-ft. long rubber-lined Dwight-Lloyd rotary pelletizer. Water is introduced through a drilled pipe which extends the length of the

• Surge hoppers with belt feeders place desired amounts of clay and coke breeze on the belt conveyor which feeds the rotary pelletizer.



• Fractions of material from a typical sieve analysis show gradation from coarse to fine. Material at the extreme right is plus ⅜-in.; at the extreme left is the minus 100-mesh fraction.

machine, the amount being controlled by regulating the line pressure. Viewed from the discharge end, the shell of the pelletizer rotates counterclockwise, while the small screw-type mixing blade, which extends the entire length of the machine, rotates clockwise. The material drops from the pelletizer into a swinging spout the purpose of which is to effect even distribution across the entire width of the sintering machine.

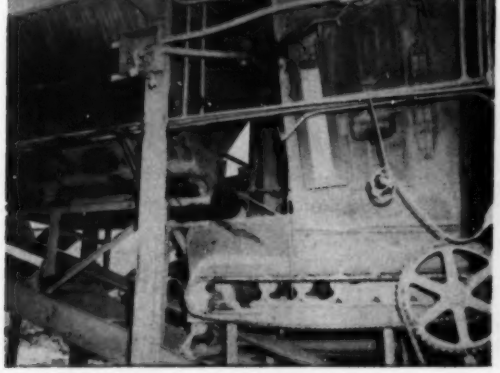
The sintering machine is a product of the Besser Manufacturing Co. It consists of a series of sintering grates carried between two strands of roller chain which pass over sprockets at the ends of the machine to form a continuous, straight-line traveling grate. The individual grates which carry the sinter charge are 18 in. wide, 5 ft. long and 10 in. deep, and the length of the machine from center-to-center of end sprockets is 54 ft.

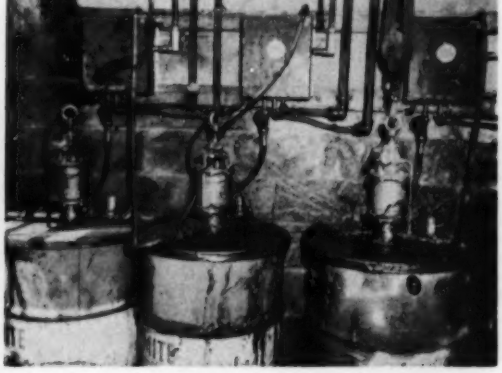
The sintering grates travel at speeds which may be varied between the limits of 4 and 10 ft. per min., this being accomplished by means of a Reeves variable-speed drive with remote control. Loaded to a depth of slightly over 10 in. by the swinging spout, the grates immediately pass under a strike-off bar which levels the bed of material to about 10 in. They then pass under a 5- by 6-ft. brick-lined ignition hood, the purpose of which is to start combustion of the coke contained in the top-most layer of material. Four burners, two located on each side of the hood, are used for this purpose, and the firing is done with No. 3 fuel oil.

The sintering grates pass from under the ignition hood, traveling over a series of wind boxes located under the machine. These are connected through valves and a manifold to the inlet side of an American Blower fan designed to pull 60,000 cu. ft. of air per min. at 250 deg. F. against 45 in. of vacuum. It is driven through a variable speed fluid drive by a 700-hp. General Electric fan motor operating on 4800-volt current.

By this means the air is drawn downward through the ignited charge as it travels the length of the hearth section, a distance of about 44 ft. As the coke in the charge burns, the contents of the sintering grates are fused into a solid coke or clinker. When the clay particles reach fusion temperature (2000 to 2200 deg. F.), gases are released internally, but are restrained to some extent by the viscous character of the particle surfaces, with the result that the material expands into a cellular structure. As the grates are carried over the sprockets at the discharge end of the machine, the individual cakes of sintered material drop onto an apron conveyor

• From this centralized lubricating station all bearings in the plant are automatically supplied with the proper amount of lubricant.





and are discharged outside the building for further processing.

Apart from the speed of the machine itself and the rate of feed, the sintering process is responsive to several means of control, all quite critical and all to a considerable degree interconnected. Both quantitatively and qualitatively the end result is best when the maximum volume of air is pulled through the charge, and this in turn tends to vary directly with the size of the pellets that are fed to the machine. Since pellet size may be increased by the introduction of more water in the pelletizer, one important means of control is to use as much water as possible without overloading the fan motor. Ignition control is also quite critical, since overfiring tends to seal off the top of the charge and restrict the amount of air which may be pulled through it. This is prevented by carefully regulating the oil burner valves.

On a cold start-up the sintering machine is operated for about an hour at a speed of about 5½ ft. per min. When all parts of the machine are warmed up and operating satisfactorily, the rate of travel is gradually increased to 7 or 8 ft. per min. On a day-in and day-out basis, however, the speed averages just under 7 ft. per min. In an average 24-hr. day total feed to the sintering machine amounts to 800 cu. yd. of raw clay and 56 cu. yd. of coke breeze, this charge yielding approximately 700 cu. yd. of finished crushed material.

The air which supports the combustion of coke is drawn through an American Blower cyclone dust collector to recover fine material before it enters the fan and is exhausted. This installation is located just outside the sintering building, and the collector hopper is equipped with gates so that the material may be periodically loaded into trucks. Total recovery in a 24-hr. period amounts to about 9 cu. yd. The recovered fines are dumped in the storage shed and gradually fed back into the processing system along with the raw clay.

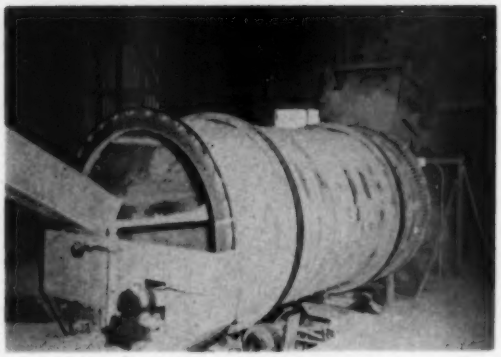
Beslite clinker is stockpiled in a semi-crushed condition, so that final crushing and sizing are not done until just before the material is loaded for shipment. This is done primarily to eliminate the segregation that would occur if fully crushed material were stored in stockpiles or bins.

Thus there are two separate circuits for crushing and sizing the output of the sintering machine. The first of these is an open circuit consisting of a 4- by 8-ft. Simplicity bar-deck screen (½-in. spacing), a spiked-tooth Jeffrey double-roll crusher and the necessary apron conveyors for handling and discharging the material into the stockpile.

The 3-in. semi-crushed material is sprayed with water as it discharges into the pit from the final conveyor in this circuit. This serves the dual purpose of expediting the process of cooling, and providing some measure of control over the amount of dust generated in the final crushing operation. Distribution of the material in the stockpile is done primarily with a clamshell crane, and the same unit, supplemented now and then by an Allis-Chalmers tractor equipped with a Baker bulldozer, is also used for reclaiming. Normally around 10,000 cu. yd. of the semi-crushed clinker is kept in storage.

The facilities for final crushing and sizing have a capacity of about 150 cu. yd. per hr. Primary equipment consists of two 4- by 8-ft. single-deck Simplicity screens and a Jeffrey double-roll crusher. The first screen permits minus ½-in. material to by-pass the crusher, while the second one is in closed circuit so that oversized material can be returned for further crushing. The same screens can also be used to split the final product into two sizes, although this is not being done at present.

Silos are available for storing material ready to ship, but at present the management prefers to load di-



• The rotary pelletizer is 5 ft. in diameter and 10 ft. long. The shell rotates counterclockwise; the mixer blade, one bearing of which is visible, rotates clockwise.

• This view of the sintering machine shows the swinging spout which feeds a mixture of clay and coke breeze onto the traveling pans.

• Draft for the sintering operation is furnished by a fan designed to pull 65,000 c.f.m. at 250 deg. F. against 45 in. of vacuum.

• Coke in the feed mixture starts to burn as it passes under the ignition hood in the background of this picture. Burning continues downward through the bed of material as the sintering pans travel the length of the hearth section.

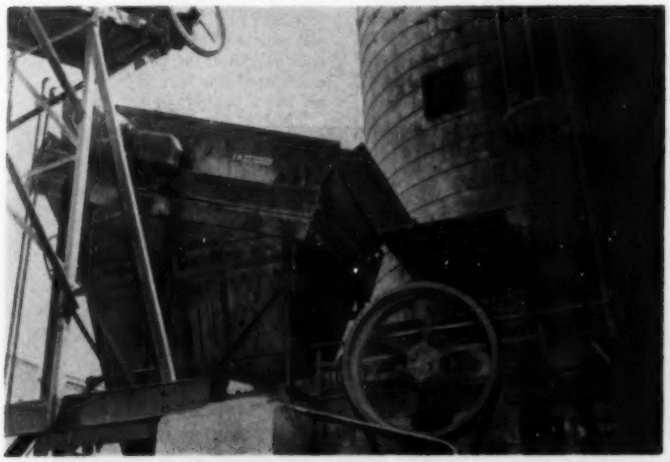
• Cakes of clinker are discharged over a 4- by 8-ft. bar deck screen located outside the plant. Material is then semi-crushed with a spiked-tooth double-roll crusher and stockpiled.

• The inclined apron conveyor at the right discharges hot semi-crushed material into the clinker pit. Approximately 10,000 cu. yd. of the material is kept in storage.

rectly from the final sizing screen. About a thousand cu. yd. of finished material is kept on hand for emergency use only. The bulk of the material is shipped by truck but facilities are also available for loading railroad cars.

As manufactured by the plant at Livonia, Beslite in the blended mix used by block plants weighs about 1500 lb. per cu. yd. Standard units with 1¼- to 1½-in. face shells made of Beslite aggregate weigh about 25 lb. Sieve analysis of a typical sample runs 2 percent retained on the ⅜-in. screen, 20 percent on the No. 4, 27 percent on the No. 8, 33 percent on the No. 28, 8 percent on the No. 48, 5 percent on the No. 100, and 5 percent passing 100.

A total of about 17 men are employed in the three-shift operation, including three men per shift to run the sintering plant itself. The plant was built, and the first experimental runs were made, in 1949. Output was limited for some time while development work was carried on, but substantial full-scale production was achieved in the fall of 1951.



• One of the 4- by 8-ft. screens and the double-roll crusher used in the final crushing and sizing circuit.

Washington News Letter

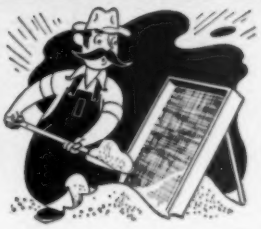
(*From page* 94)

increase in individual prosperity is the increase in per capita expenditures for personal consumption in terms of constant dollars. This is a measure of the actual goods and services consumed by each citizen. It is his most intimate measure of well-being. These even more refined data are shown in the following table:

Year	Per Capita Personal Consumption (Dollars of Constant (1929) Value)
1929	511
1930	476
1931	457
1932	415
1933	406
1934	427
1935	450
1936	490
1937	505
1938	492
1939	516
1940	540
1941	574
1942	562
1943	571
1944	586
1945	617
1946	677
1947	682
1948	684
1949	692
1950	715
1951	703
1st quarter 1952 (annual rate, partially estimated)	700

Individual prosperity as measured by per capita consumption indicates that the current level is slightly more than one-third above 1929 and about two-thirds above 1932. These are the hard core of economic facts which are sure to be a significant factor in determining how many citizens will vote.

Screenings



by William M. Avery

WE understand that a major television network has established a charm school for November hopefuls, the purpose of which is to teach candidates the winning gestures, proper timing and make up tricks which conduce to the best TV appearance. Noting this development, a recent news service bulletin sent out by the U. S. Chamber of Commerce predicts that 1952 candidates will be better actors than ever before, but expresses considerable doubt that proper lighting will strengthen the candidates' characters or pancake make-up improve their abilities.

"No school," says the bulletin, "has yet been established to give candidates refresher courses in character and statesmanship. The individual

citizen will, therefore, have to put the candidate through an examination in order to judge what grades he would be able to make if such a school did exist." It then goes on to suggest a number of basic criteria against which political aspirants might be evaluated.

What the Chamber of Commerce apparently fears is that politicians who have graduated from the TV charm school will acquire an unfair advantage over those who haven't, and that this will further louse up the already thoroughly loused up procedures by which our enlightened democracy selects its political leaders. Judging from what we saw on TV of the recent convention orgies at Chicago, we're inclined to think that the reverse is probably true, for if any honest-to-goodness charm actually came within range of the cameras, it was completely filtered out before the image reached the viewers. There is no doubt that TV is capable of transmitting a wide range of impressions, but all types and shades of political charm appear to be stopped cold some distance behind the line of scrimmage.

Unlike radio, which unquestionably gave an advantage to a candidate with a pleasing voice, TV actually seems to have an equalizing influence, by making even fairly good speeches sound pretty dull, and by making reasonably personable candidates look like characters recruited from skid row. Whether this is desirable or undesirable we can't say, but we think it will leave the sovereign voter just as much up in the air as ever when he gropes his way into a voting booth on November 4.

Sand Consumers

IT has often occurred to us that the sand industry ought to make some concerted effort to promote the use of its material among small fry. In our own experience the backyard sandbox retains an irresistible year-in-and-year-out allure, despite such gaudy counter-attractions as supersonic death ray guns, "build your own atomic bomb" sets, and jet-propelled velocipedes. The gadgets all find their way quickly and violently to the scrap pile, but the old sandbox goes on year after year yielding a rich, varied, usually non-violent, and often surprisingly constructive brand of enjoyment.

The accompanying unposed photograph, taken during the course of a recent backyard birthday party, indicates the younger set's high regard for sand. Judging from the amount which disappeared in the course of an afternoon, sand must have been used extensively as a chaser for the ice cream and cake. Anyhow, our point is that this is one market for sand in which the consumer literally consumes the product, and without bothering to dilute it with spinach.

Free Wheeling

A NEWS clipping we've just received from Tenino, Wash., states that the Thurston County Commissioners have just moved their gravel pit from a point between Tenino and Bucoda, where it had been stationed for several months, to a new site on the Tilly Road beyond Millersvania.

That's one nice thing about those old portable gravel pits; any time you get tired of one location you can just throw 'em in gear and take off like a bat out of hell.

MODERN DESIGN PRINCIPLES IN PYRO-PROCESSING

By WOLF G. BAUER
Consulting Engineer

PART III—COOLING SYSTEMS

THERE seems to be little reason to separate cooling from heating in principle, fundamental equipment design, or operational techniques. One is the reverse of the other, and heat transfer by way of convection, radiation, and conduction play their parts in both. It is for this reason that the writer has included coolers under the heat-exchange equipment classifications of Part I in this series of articles.

Cooling may be carried out separately in different and specific process units, or it may take place as an end process to heating in a zone of the heating unit. Cooling materials may be under control independent of heat regulations in the heating process preceding cooling, or it may depend to a considerable extent on the variables affecting heating. In the latter case, such dependency should be overcome with the proper equipment design alterations.

Cooling Needs Naturally there are several more or less obvious reasons for cooling materials, any one of which may constitute a primary process requirement:

1. To make possible the safe handling and transportation of materials on conveyors as well as in processing mills, screens, and product containers.

2. To terminate or control physical and chemical changes such as softening or hardening, glass or crystal formation, shrinkage or expansion, gas evolution, strain or annealing tendencies, etc., over a period of time as a part of the process cycle requirements.

3. To cool in order to reclaim or recuperate the sensible heat in the hot material for use in the process or other heating operations.

Cooling Mediums Generally cooling is done with cold air, and even when cooling is by conduction and radiation, or by indirect technique, such heat transfer rates are affected by the temperature of air-cooled surfaces. Air for direct or indirect cooling is relatively low-priced, its cost depending on its velocity and degree of turbulency.

Air must be in motion in order to remove heat by surface scrubbing and subsequent conveying, and this motion must be under control in regard to amount, direction, and velocity. Thus sluggish, haphazard, and uncontrolled natural convection currents over cooling stockpiles of hot material, or around hot steel shells and jackets of cooling units represent low-efficiency cooling air at no cost.

Air in motion, induced within the pressure range of stacks and chimneys is a low-cost controllable cooling medium which is thus frequently used by virtue of available hot gas columns in systems having an inlet and outlet height differential, as in kilns and stacks. Cost of this type of cooling air is mainly in the form of depreciation and maintenance of chimneys and hot air ducts and insulation.

High-velocity turbulent air impinging on materials and cooling surfaces has a price tag, its cost varying in proportion up to about the cube of the velocity to a certain value. This is the most valuable type for cooling when conditions allow its use. Because of this exponential cost curve, modified by the fact that the heat pick-up rate varies up to the 0.7 power of mass velocity of the air, an economic balance point is soon reached beyond which more vigorous air scrubbing is not justified.

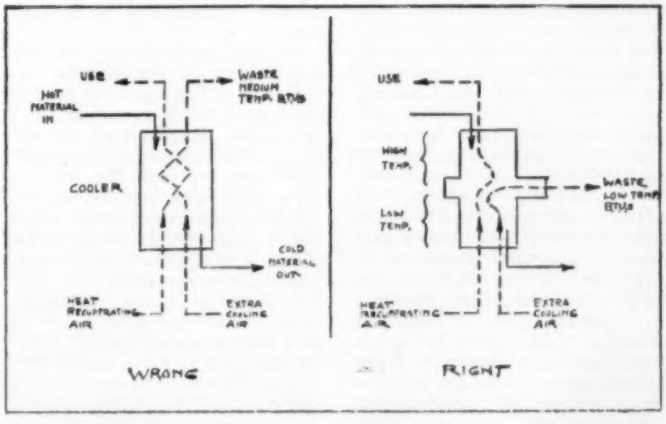
When materials can tolerate it, when heat recuperation is not an economic necessity, and when extremely high cooling rates are called for, evaporative water cooling is most effective because of the relatively high heat of vaporization that can be utilized at the high temperature differentials between hot materials or steel surfaces and liquid water.

RECUPERATIVE COOLING

In today's economic picture of plant operation in virtually all parts of the world, there is a continuing and increasing incentive to recuperate the sensible heat of heat-processed materials whenever possible. This discussion will therefore center upon obtaining heat economy within the cooling stage of the processing cycle.

In Part I of the series we differentiated between counter-flow, parallel-flow, and stage or cross-flow techniques and principles in the contacting of materials with gases for heat-exchange purposes. There are still many who want to compare preheaters, heaters, dryers, and coolers without taking notice of or making allowances for the underlying differences various units under these classifications will possess. We have already pointed out why counter-flow technique and appartus is generally

Figure 1. Correct and incorrect application of "extra cooling air" in recuperative cooling.



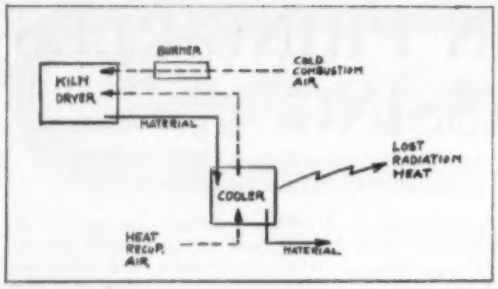


Figure 2. Inefficient recuperative cooling.

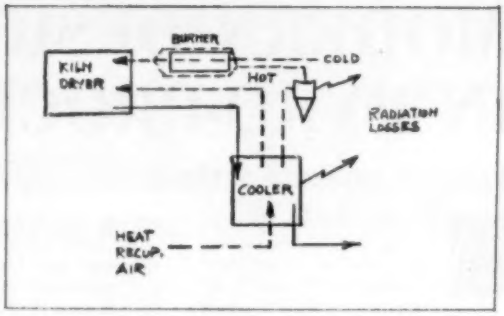


Figure 3. Cold-hot air burner system.

the most efficient from a purely thermal standpoint, everything else remaining on an equal basis. This holds for rotary equipment, as well as for shaft-type units. Discussions, however, continue to appear in the literature expounding one technique or process unit over another, giving thermal efficiencies to prove the point of argument. This holds as much for cooling as for heating. In fact, the issues in cooling are often more beclouded by the frequent lack of establishing a true and clearly-defined basis of overall efficiency. This may be on a cooling-only basis, on a recuperated-heat-returned-to-process basis, on a recuperated-heat-to - process - and - to-fuel-drying-etc., basis, on an equivalent endothermic-process - heat - requirement basis, or on one which includes depreciation and power converted into B.t.u.'s expended to save on fuel B.t.u.'s.

To anyone who keeps in mind the fundamental differences between counter-, cross-, and parallel-flow, there is little doubt that for particles above sand size, the shaft - type through - bed or percolating flow cooler can be made thermally most efficient, providing, of course, that the material lends itself to this type. This in no way limits the use of the grate cooler, nor does it detract from the possibilities of rotary equipment, since these can handle and convey occasional large lumps without trouble. Rotary cooling equipment has within itself the potential of much greater efficiency than heretofore obtained, along with a much wider adaptability to various conditions. More of that in a later section.

The underlying reason for the high efficiency of counterflow equipment, as far as usable high temperature B.tu.'s is concerned, rests in the inherent conservation of cooling air required. Single or multi-pass cross-flow coolers allow the air to contact only a small portion of the resident material, and this at varying temperature differentials for both high- and low-heat transfer rates. This condition is often improved by using excess air cooling, but not recuperation, and is correctly applied in the low-temperature or last portion of the various grate-type coolers, so that such wasted B.t.u.'s are of the low-temperature type. The power B.t.u.'s used for excess cooling air must also be added to the wasted B.t.u.'s. When such excess cooling air is required with shaft or rotary counter-flow coolers, it, too, must be applied only in the low-temperature cooling stage, and not passed along with the recuperating air through the system and removed after its passage through the whole unit. (See Figure 1.) In some processes the initial rate of cooling may be a factor to be considered. Thus in the cement industry, rapid initial cooling and chilling of clinker can be done only by cross-flow or stage-flow technique, in order to inhibit crystallization and induce glass strain to save on subsequent grinding power.

Recuperating Limits

Aside from proper design of cooling equipment, several other factors influence the degree of recuperation possible. Among these are the following:

1. Influence of the process heat requirements. An endothermic process such as calcination or heat of vaporization in drying requires heat in addition to that needed for raising the material temperature to process level, and will therefore use more combustion and cooling air, which can also recuperate more heat per tonnage heated, than would process heating a more or less inert material to temperature.

2. Influence of fuel and burning system. Any low-temperature air used for combustion requires B.t.u.'s for heating it to flame temperature. Primary air in the burner proper is usually limited to low temperatures and the minimum of entrained dust, if any. Some burning systems, such as direct-fired pulverized coal mills and burners, require a very large proportion of the total combustion air, as does all producer gas firing. Separate coal grinding and injection from intermediate supply bins requires less primary air, and thus makes possible more recuperation of the sensible product heat in the cooler. Some natural gas and oil burning systems also require very little primary air, 10 percent or less.

It can be seen, therefore, that the efficiency of the recuperative cooling system is relative to process heat requirements and type of fuel used, and that cooling with combustion air only may not be sufficient for purposes of material cooling. If recuperated heat can be used in the form of dusty high-temperature air or clean low-temperature air for fuel injection, fuel drying, or other outside process uses, the cooler can become quite efficient in recovered heat capacity. If there are no other possibilities for heat utilization from the recuperative cooler outside of secondary air heating, and if this secondary air comprises only about 50 percent of total combustion air used, it is obvious that the highest type of counter-flow recuperative cooler in two stages should be considered, and that extra cooling air must be provided in the low-temperature stage only.

RECUPERATION POSSIBILITIES

Unlike most heating system designs, a cooling system lends itself to many modifications and changes. While heat generation is often limited, the use of extra cooling air in an inadequately designed cooler may overcome the shortcoming. Such extra air over that which can be reused in the system is, however, detrimental to thermal efficiency, and we shall be concerned with less ob-

vious means to raise cooler performance, with emphasis on recuperative capacity.

As pointed out and illustrated in Part I, the equipment design and technique of operation is primarily influenced by the sizing and nature of the material.

Heat Recuperation From Hot Dust Recuperative cooling of fine particles below sand size is not yet practiced widely, due possibly to the lack of efficient low-cost equipment developed specifically for this purpose. To be attractive such equipment must have very high heat transfer efficiency and capacity. Cooling with water-jacketed conveyor-type equipment is relatively easy, but it is not recuperative in most cases. However, cooling with air that can be used in the heated state is a more involved problem. An indirect cold-surface conduction system is most widely applicable. In engineering and designing such a system for dust-size material, the following points are pertinent:

1. Provision must be made for establishing a positive gravity or conveying flow such as with a screw, revolving flighted cylinder, paddle conveyor, vibrating trough, or any other means to cause material movement and agitation along an elongated path which will allow countercurrent air and hot dust flow on each side of the separating partitions.

2. Minimum cross section or thickness of material streams must be in agitated contact with maximum cooling surfaces. This requires fin structures raised above the conduit metal surfaces and projecting into the moving hot dust stream. Careful designing must minimize the possibility of the formation of dead material pockets tending to insulate and reduce cooling surfaces.

3. On the air stream side of the cooler, it is imperative to use the minimum air channel cross section for maximum air velocities. On this side also, heat transfer fins should project into the air stream, such fins being preferably carried in a single piece through the intervening walls for a high rate of conduction.

4. Judicious use must be made of insulation to those air passage surfaces not in contact with the hot material to be cooled.

If these precepts are kept in mind and are followed, it is possible to cool and recover heat from dusty fine materials for use in drying and combustion. Products from flash roasting and calcining systems and

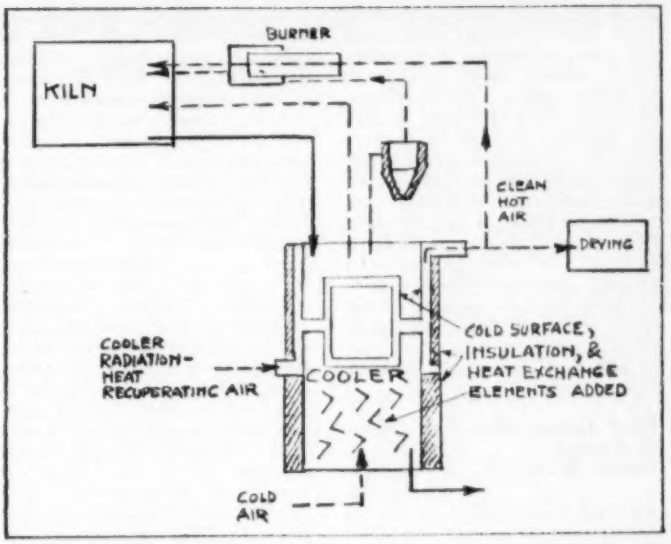


Figure 4. Direct-indirect recuperative cooling.

from rabble furnaces, and materials from hot dust recovery systems working with exhaust gases from rotary kilns and the like can be recuperatively cooled to a much greater degree than now practical. There are always more uses for clean hot air than there are for dusty hot air, although the temperature, *i.e.*, the B.t.u. content per weight of air, and the cost of these B.t.u.'s will decide the advisability of cooling recuperatively rather than with water and without heat recovery. The writer's design calls for hot dust to be conveyed and agitated in horizontal revolving cylinders of small diameter fitted with ribbon flights which project partly into the hot dust for propulsion and heat transfer purposes. Another ribbon flight of opposite pitch, welded to the inner cylinder, projects into the annular air jacket in which rotating high-velocity cooling air flows countercurrent. Parallel studded heat leakage fins and insulation further develop heat transfer capacity.

There are a number of systems in which dusts are cooled by pneumatic conveying, in mechanical air separators, and through aeration, but not on an economical heat recuperation basis.

Heat Recuperation From Sand Size Materials Recuperative materials to be cooled recuperatively may be divided into that which contains some fines, as dust, and that which is relatively clean and free of fines. The choice of direct air contact convection cooling by sweeping surface, free-falling, or fluidization technique, as against indirect metal contact conduction cooling depends on whether a percentage of fine dust can be tolerated in the heated air, *i.e.*, dust which cannot be removed in insulated separators. After-treatment of the material also has a bearing on the choice. In a number of instances, the cooling air can be made to act as a preliminary classifying medium in connection with cyclones between the cooler and air-use point, although some small amount of very fine dust remains in the heated air.

This type of material, when in the heated state, usually has excellent flow and sliding characteristics, and can be handled readily by gravity to chutes, feeders, and conveyors. Due to the large surface area provided per ton of material, cooling is rapid, but percolating air flow through beds of this material requires considerable pressure and power. If percolating-type flow is desired, it is best accomplished by dense-phase fluidization, which represents the ideal technique for this type of material from a heat transfer standpoint. (See the writer's articles in the May, 1947, June, 1947, November, 1947, and June, 1948, issues of PIT AND QUARRY.)

If recuperative cooling is done in rotary equipment, it is best done counterflow in free particle contact technique by repeated showering during conveying. For fragile ma-

terials, such treatment may be more severe than low-energy fluidization, and excessive attrition and dusting can be expected. When the material is suitable, nothing is simpler, cheaper, or more effective than cooling hot sand-size materials by fluidization. It is decidedly a technique following modern trend, and may be used in combination with other type coolers, or alone. It can be made to handle particles from ½ in. down to dust. The writer has used it in parallel with shaft crossflow coolers to increase the capacity of the latter, and to produce a separately cooled product, the recuperated heat of both units being used for combustion work.

Heat Recuperation In Cooling Coarse Materials The simplest and most efficient example with such materials is exemplified by the integral cooler of vertical lime kilns. Due to the endothermic heat absorption in calcining limestone and dolomite, sufficient cooling air is present when at least 75 percent of the combustion air can be passed up through a correctly-designed cooler. In many shaft kilns it is quite possible to arrange air inlet and outlet so as to make the air flow through the cooler independent of kiln draft and fuel requirements. In any case, recuperation is inherently high, especially so with natural gas firing and mixed feed kilns, while radiation heat losses are generally small. In most shaft kilns, coolers and cooling air measurement and control seem to be forgotten items.

In shaft up-blast coolers for rotary kilns, air flow control can be made more readily independent of heat processing variables. Material level regulation and constancy of air supply in step with either cooling needs or combustion requirements must be provided. The writer has used both static pressure regulators and electric eye elements for material level and air-flow regulation in specially-designed shaft up-flow and cross-flow recuperative coolers.

Concerning cooling rotary kiln materials, these may be of a wide variety of sizes, the larger pieces and lumps posing a serious handling and cooling problem in shaft-type coolers. Rotary or grate-type coolers can handle and convey large lumps along with the small, although they are not able to effect much cooling of such sizes. The more efficiently the rotary recuperative cooler is designed and built, the less suited it generally is to handle large agglomerated balls or kiln scale chunks, simply because an efficient rotary cooler is not an empty rotating cylinder with large free waste spaces. Since the cooling of large oversize particles is never complete, recuperative coolers of any type should not be made to act as conveyors for such material. If a kiln operation produces only a few lumps, these can be shunted out manually. If they remain a by-product of considerable proportion, it is certainly in the interest of handling and cooling operation to design and provide a mechanical by-pass arrangement for handling, cooling, conveying, and size reduction. This may consist, for instance, of a water- or air-cooled grizzly between kiln and cooler to shunt out the oversize onto a husky drag chain running through a constant-water-level inclined trough provided with a steam hood and water pump, bringing about rapid chilling prior to reduction in slugging rolls. Chain curtains should be provided to seal off cold air leakage through the by-pass chute to the water cooler.

If a grate cooler is employed to convey such large lumps, it can be arranged in closed circuit with a breaker fitted with water-cooled bearings and sprays, the crushed and still hot material being returned to the cooler for further cooling. The discharge opening of the grate cooler would be provided with an inclined or live grizzly for the separation, as well as a dense chain curtain, so that air flow to stack and kiln is not disturbed, and the system is automatic and mechanical.

Summary of Recuperating Principles Successive stages of heat recuperation and arrangements are diagrammed in Figures 2, 3 and 4. There are numerous deviations in some detail from these arrangements when fuel, burner system, and relative heat quantities vary. These diagrams represent no particular type of cooling and heating system or equipment, but rather arrangements under variable conditions.

It should be obvious that if heated combustion air represents the sole means for picking up sensible heat of outgoing material, and the amount of such air is limited by combustion needs, the B.t.u's should be recovered in the form of high-temperature heat units for minimum weight of carrier air. This can be done in both counter-flow and cooling cross-flow techniques. If the cooler is poorly designed and has insufficient heat exchange capacity, this combustion air may not be ample for cooling, and extra material-cooling air is required. If this is the case, it is advantageous from the standpoint of maximum recuperation, to divide the cooling into two stages, employing the excess cooling air only for finishing the material cooling job at the lower material temperatures. This, in effect, wastes the low-temperature B.t.u.'s and regains the high-temperature heat for combustion. If the usable recuperating combustion air and extra cooling air were passed through the system together, as is sometimes done, the mixture dilution would result in medium-temperature heat units that provide a lower total for combustion, and a higher total in the vented excess air to waste.

In a future article the recuperative direct and indirect cooling possibilities of rotary equipment will be discussed, for in it we have a widely used and adaptable device for which top heat-exchange efficiencies are not yet in sight.

Mines Bureau Issues List Of Protective Appliances

A list of respiratory protective devices approved by the U. S. Bureau of Mines to February 1, 1952, is included in a publication released by the United States Department of the Interior.

To assure that safe, satisfactory and reliable respiratory protective devices will be available, the Bureau of Mines has established schedules of minimum requirements for such equipment in five classes: self-contained breathing apparatus, supplied-air respirators (hose masks, air-line respirators, and abrasive blasting helmets, hoods or masks), dispersoid (dust, fume, mist) respirators, and non-emergency (chemical cartridge) gas respirators. Manufacturers may submit their devices to the Bureau for approval under these schedules.

A free copy of Information Circular 7636, *List of Respiratory Protective Devices Approved by the Bureau of Mines*, may be obtained from the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

Georator Corporation Forms Geophysical Exploration Div.

Officials of the Georator Corporation, Arlington, Va., have announced that the firm has formed a Geophysical Exploration Division to render engineering and exploration service in foundation, soil corrosion, and prospecting work.

Heading the new division will be E. R. Shepard, who was formerly in charge of geophysical foundation exploration for the Army Corps of Engineers and the U. S. Bureau of Public Roads. Shelley Krasnow will supervise well-logging and special electrical investigations.

Report on Current Labor Developments

By S. HERBERT UNTERBERGER

S. Herbert Unterberger & Co.
Industrial and Labor Economists
Washington, D. C.—Philadelphia, Pa.

THE movement to bring all of the establishments in the pit and quarry industries under the coverage of the Fair Labor Standards (Wage & Hour) Act has speeded up substantially. Only a few months ago the Third Circuit Court decided the Alstate Construction Co. case in which it ruled that that company's off-the-road employees were subject to the provisions of the law. Alstate not only had employees who worked at applying its product, amesite, to interstate roads, but also had off-the-road employees who worked at producing the material. The court ruled that both groups of employees were equally covered by the law and had to be paid overtime rates as required by that law. There was no question about the fact that the road employees were covered. The court ruled that the off-the-road employees were also covered on the ground that they were producing material which is used to repair and maintain the surfaces of instrumentalities of commerce and are therefore engaged in the production of goods for interstate commerce.

In July, the Eighth Circuit Court used the Alstate decision as one of the principal precedents in its decision involving the Bramhall Co. This company which operates rock quarries and crushers had no road employees. The company produces rock and oil mat aggregate. None of the rock was shipped outside the state in which it was quarried. A large proportion, however, was produced for use on existing roads within the state and for use in maintaining and building dikes and revetments.

The roads on which the rock was used carried interstate commerce and the dikes and revetments on the river were there for the purpose of making it navigable so that it could be used by barges transporting interstate shipments. None of the company's employees applied rock to the highways or the dikes, but instead sold the materials to others who did the actual applying. Nevertheless, the court ruled that these employees were engaged in the production of goods for interstate commerce and, therefore, are covered by the law.

Since a great deal of the products of the pit and quarry industries are used on roads and roadbeds, these decisions lead to the conclusion that practically all its employees are covered by the Fair Labor Standards Act. They put all employers who do not now comply with that Act on notice that it is unlikely that they are properly exempt.

As a matter of fact the court in this most recent case has gone on to point out that the Supreme Court in previous cases essentially recommended that the coverage of the Act should be construed liberally. It quoted the Supreme Court as saying "The Fair Labor Standards Act was designed to extend the frontiers of social progress by insuring to all our able-bodied working men and women a fair day's pay for a fair day's work. Any exemption from such humanitarian and remedial legislation must therefore be narrowly construed, giving due regard to the plain meaning and statutory language and the intent of Congress."

Union Shop—Steel Style

After the economic issues in dispute had been settled, the steel strike continued for several weeks over the question of the union shop. In its recommendations, the Wage Stabilization Board somewhat backhandedly recommended that "the parties include a union shop in their new contracts, determining in their forthcoming negotiations the type suitable for their situations." This recommendation settled nothing because the union insisted that the "suitable type" was a full union shop in which every employee became a union member within 30 days after employment, and in which continued membership was thereafter required as a condition of such employment. The companies were unwilling to regard anything more than the previous maintenance of membership arrangement as "suitable."

The outcome indicates that the companies' position prevailed more than the union's. While it masquerades as a union-shop clause, the contract merely requires the following:

1. Each new employee must sign an application for union membership.
2. He may revoke the application in writing between 15 and 30 days after being hired.
3. If he does not revoke in that time, he must remain a union member.
4. To keep their jobs, all union members (present members as well as new hires) must remain in good standing until the contract expires on June 30, 1954.
5. At that time they will have 15 days during which they may resign.

The principal difference between this arrangement and the present contract provision is that a new employee is now required to sign an application for membership. Formerly, the union had to sign him up. Obviously, the union expects that once an employee has applied for membership it is very unlikely that he will revoke that application. Furthermore, if he does try to revoke it, the union will receive immediate notice and will try to prevent him from taking that action.

In this struggle, the companies have clearly won their battle against compulsory unionism. Present employees who are not members of the union are not required to join. Nor are new employees who do not want to be members of the union required to join. Employees who are members and want to get out of the union have that chance for 15 days after the current contract expires.

On the other hand, as a practical matter, very few employees are likely to use the options to withdraw from the union. Not only are the social pressures to stay in the union great, but the formalities involved in resigning in writing can become formidable. The union has secured a clear organizing advantage and, at the same time, has saved itself much of the high cost of finding the new employees and convincing them of the advantages of membership. Being substantially free of the organizing task, it can devote funds and resources formerly used for that purpose to other tasks.

Subdivision Replaces Carney Cement Plant

The cement plant of the Carney Company in Mankato, Minn., has been razed to make way for a subdivision. The area will be divided into 100 homesites when the development is completed.

The Carney cement plant was erected in 1883 and was considered to be one of the largest in the United States at one time. The company is going out of the cement business entirely, but will continue to manufacture rock wool.

California Open Pit Operation Takes to the Water

Rockaway uses unusual setup to recover sand and gravel from ocean.

THE Rockaway Quarry, Inc., for many years got its material from a large, conventional, open pit located on a sea-shore hillside. However, careful exploration and study of local ocean bottom material showed justification for the installation of an equipment spread capable of drawing sand and gravel from extensive beds directly beneath the rolling surf beyond the breaker line. According to the reports of geologists, the aggregate — which, strangely enough, seems to concentrate at one particular point on the beach—originates in the Sacramento River and is flushed down through San Francisco Bay to the Pacific Ocean. Once outside, it appears to be swept by the Japanese Current to this lodging place in a small open cove several miles south of the Golden Gate.

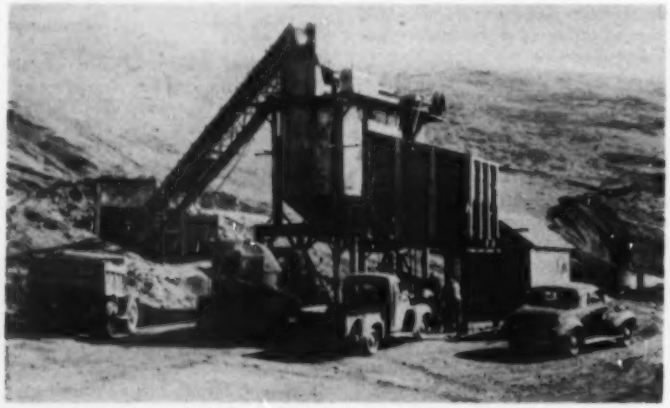
To accomplish the work, the owners have erected, on a cliff over the beach, a stout timber tower to which a pair of Sauerman slacklines are rigged. Roads were built and bunkers and sorting machinery were hauled in and erected. One of the 1⅛-in. slacklines runs from the tower to a mooring point at the tip of the cove among sea-swept boulders. The other, a longer one, extends from cliffside to sea bottom down a sharp incline of some 1,500 ft. Formerly, the line reached a length of 2,000 ft., but continual surf action plus normal usage brought it in to the present length. Although the bottom is entirely smooth, divers have placed five 2,000-lb. anchors at strategic positions, and it now appears that further shortening has been effectively forstalled.

An overall view of the Rockaway Quarry sea-going operation. Bulk material is hauled by truck from the edge of the cliff (below the mooring mast) to the dump (center foreground). The road leads to the yard office and to stockpiles.

Under operation a 2-cu. yd. drag bucket is let down the line by gravity until it is nearly awash. Then the line is slackened sufficiently to drop the bucket onto the ocean floor. Next, the operator draws the bucket along until the sound of his laboring engine shows it to be full. He then takes in slack and draws the load up the line to dump it into a hopper beside the tower. From the tower the material is transferred by truck a few hundred feet to a sorting plant, where it is run through grizzlies, a Simmons shaker screen and

(*Continued on page* 108)

A closeup of sorting and temporary storage facilities. The wooden hopper above the men has just been readied for transfer to position under the slacklines as the season begins.



The drag bucket being lowered into position above the sea. The slackline is anchored to the point of land behind the bucket. The hoisting engine is housed in the shed at the extreme left, and the other hoist is located in a similar position directly opposite (not visible).

• A general view of the H. G. Fenton Material Company's new Otay No. 1 plant. In the foreground is the timber bunker for crushed material; at the right, in the distance, is the new batch plant.

35-Year-Old Fenton Plant Replaced By 250-T.P.H. Facilities Near San Diego

another ON THE SPOT report

By HARRY F. UTLEY

SINCE the early days of the dons the Otay Valley near the extreme southern boundary of California has been lush and productive. Huge crops of celery, beans, and other vegetables are grown 12 months of the year in the valley's genial climate. Beneath the layers of rich topsoil, however, lie shallow extensive beds of good sand and gravel, deposited centuries ago by the Otay River during its rampaging run-offs to the sea.

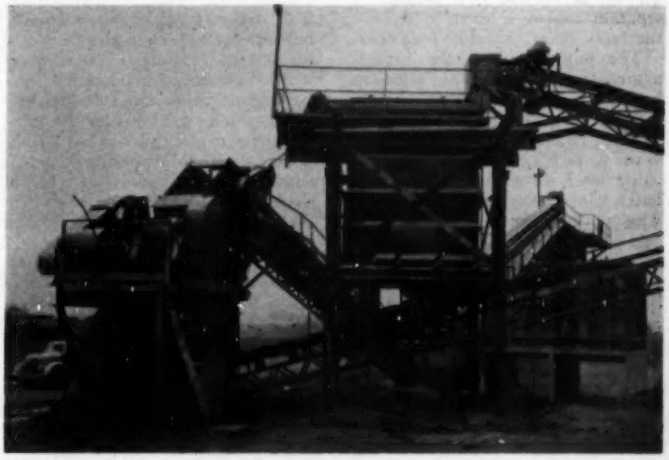
A pioneer in the valley was the late Henry B. Fenton. His domain included thousands of acres in the Otay country on which he raised crops and cattle and harvested sand and gravel for the builders of the San Diego region.

Today the H. G. Fenton Material Company is San Diego's leading producer of aggregates and ready-mixed concrete. Its Otay No. 1 plant, which originally went into service about 35 years ago, was replaced last year with a new and modern operation capable of producing about 250 t.p.h. Production started at the new plant in November, 1951. Another older plant in the valley, Otay No. 3, also will be closed down, since the new plant possesses sufficient capacity to care for the demand in that area.

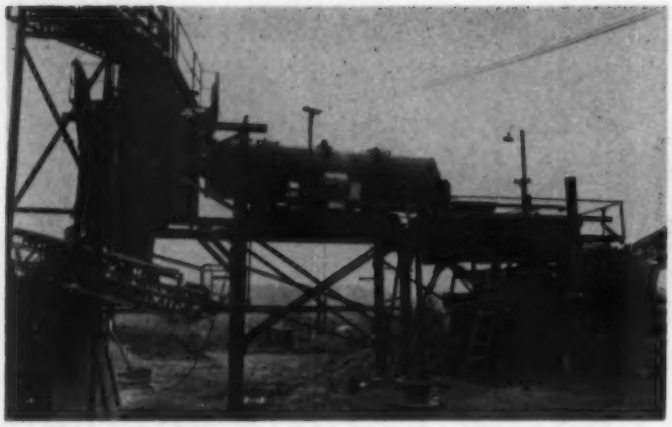
Good material is available to a depth of 8 to 10 ft. in the Otay No. 1 pit. It is excavated by a Northwest 1¼-cu. yd. diesel shovel which loads the trucks. The haul to the plant hopper is about a quarter of a mile.

A reciprocating feeder at the hopper-bottom opening puts the pit-run on a 30-in. by 120-ft. belt-conveyor running up to a 15- by 28-in. Pacific primary jaw crusher. Here a grizzly rejects the 4- to 10-in. cobbles for reduction to a maximum of about 3 in. before the load continues onward *via* a 30-in. by 145-ft. conveyor to a 4- by 10-ft. Symons scalping screen. Plus 1½-in. screen rejects may be chuted to a pair of Symons standard cone crushers for further reduction. The cones, one a 3-ft. and one a 4-ft. unit, can be used together, or singly, as desired and much of the product is carried off to the "dry" or crushed-rock department, where it is finally sized as finished product by a Symons 42-in. by 12-ft. screen. The aggregates drop to a 4-compartment truck-loading bin with a total capacity of about 160 tons. Another 4- by 10-ft. Symons screen in the circuit can, however, put selective sizes back into the feed circuit as required. A good deal of material is trucked over to an adjacent asphalt plant operated by the Griffith Company; and there is ample flexibility in the circuit to maintain product balance, since the hot plant may be operating at times at full capacity and require larger tonnages than normally.

Throughs from the scalping screen, normally minus 1½-in. and includ-



• The primary jaw crusher (left) and the screen (right). This screen does a selective sizing job for balancing sizes to meet changing demand.



• The belt-trainer rolls on the conveyor emerging from the sand-recovery tunnel.

• Left: The revolving scrubber and (below, right) the twin dewatering scoops.

ing all the sand, are flumed to a Madsen 6- by 24-ft. revolving scrubber for scouring and washing out, since considerable fine colloidal material occurs in the deposit. The scrubber discharges to a 4- by 12-ft. Symons spray-equipped double-deck screen with a multiple-top deck. This unit washes and separates the gravel into three commercial size ranges, the products being stockpiled over a reclaiming tunnel by three stacker conveyors. Bottom-deck throughs (minus 3/16-in.) are further washed and classified as concrete sand by a dual scoop-type wheel which operates on a 45-degree plane in a wash-box. These wheels are designed and built by the company and have been used for years with considerable success in the firm's other plants. The scoops deliver a clean, dewatered sand requiring the minimum of drainage time in the stockpile, which is built up by an inclined conveyor. A separate tunnel is used to reclaim the sand.

The tunnel under the coarse-aggregate stockpiles has sufficient head-room to allow trucks or railway cars to load beneath the gates inside. It also houses a belt conveyor to reclaim the aggregates and carry them to the bins of a new batch plant being erected close by. The sand is reclaimed by tunnel belt only, however, and is carried up to a sand bin at the batch plant for loading out into trucks. Some sand will, of course, be utilized in batching concrete when the new facilities are ready for charging truck-mixers some time this year. That batch plant is a Noble unit, complete with bins and weigh-batching equipment, with a Blaw-Knox enclosed cement silo alongside for storage of bulk cement.

Except for some deficiency in No. 30 and No. 50 fines, the deposit is pretty well balanced for sizes, since the brushers keep any variance in natural material under control. Some sand is trucked over from a river deposit a few miles away to make up for any lack of the medium-size fraction in the sand.

A Layne-Bowler deep-well pump supplies the plant with its 700-g.p.m. wash-water requirements. American Rubber belting and Hewitt-Robins rolls and idlers were used for the conveyors. The steel structures were fabricated in the Fenton shops, and the sections were assembled by bolting and welding at the plant. A new Webb scale has been installed. It has a 70-ft. platform to permit weighing of long truck-trailers carrying salt from the solar-evaporation works of the Western Salt Company, located on the Pacific shore a mile or so away. The salt works were founded by the late Mr. Fenton. Present head of this concern is L. H. Hunte, also the president of the H. G. Fenton Material Co.

Mr. Hunte and his general superintendent, Al Lejonhud, designed the new Otay No. 1 plant and supervised its erection. J. C. Kent is plant superintendent.

The Fenton company's main offices are located at 1245 National Avenue in San Diego. A subsidiary, Pre-Mixed Concrete Co., Inc., operates the 4 batch plants on the company's other aggregate-plant properties at Mission Valley, Chollas, and Murray Canyon in the San Diego area. Approximately 50 truck-mixers make up the fleet.

California Open Pit Operation

(*From page* 106)

a fresh water washing plant. Finally it is taken to appropriate storage bunkers. As a precaution against unpredictable natural conditions, which have occasionally made it impossible to produce the desired material, dump trucks carry loads of aggregate to stockpiles in a sheltered area over the hillcrest, where the yard office, scales, and equipment sheds are located. Peak output is 600 tons and average about 400 tons per 8 hr. shift.

The slacklines are actuated respectively by a pair of double drum hoists—*i.e.*, an American hoist gas rig and a Christenson diesel. Cableway engineers and experienced slackline men who have examined the setup are in accord in saying that the method of working without a tail pulley on either line is unique and unprecedented along this coast.

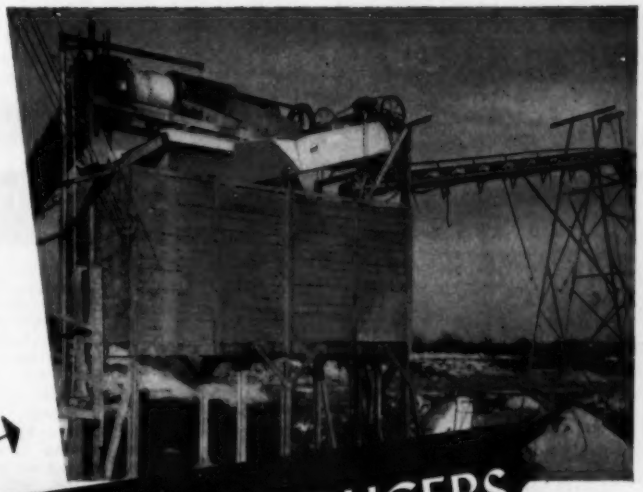
Included among other equipment are three mixers—two Jaegers and one Willard, mounted on Ford, International, and Reo trucks. The dump truck fleet includes seven K-7 and two K-5 5-cu. yd. Internationals; three F-6 5-cu. yd. Fords; a 1942 8-cu. yd. Ford; two 1½-cu. yd. Hough loaders; a P&H 225A clam; and four TD-18 International tractors.

The yield of the ocean quarry includes two grades of sand—10-mesh and 20-mesh down; ⅜-in. to ½-in. gravel; ½-in. to 1-in. gravel; and an occasional pile of material up to 6-in. for special purposes. Operations are presently being conducted by Harry G. Fishtrom, general manager.

The National Gypsum Company has broken ground for a $750,000 addition to its executive offices in Buffalo, N. Y. The 3-story 78- by 111-ft. addition at the rear of the present offices will provide 30,000 sq. ft. of floor area, including sufficient space in the basement for the protection of 2,000 people against bombing attacks.

New Jersey is booming these days and that calls for lots of aggregate to particular specifications.

F. & M. DiMaggio Co., Paramus, N. J. is among New Jersey producers who happily installed Eagle Equipment. They use a 36" x 22' Eagle Fine Material Washer with 30" dia. screw flights to wash, classify and dehydrate sand—over 400 yds. pit run material processed daily—300 g.p.m. wash water used from pond. Material chuted from screen to washer is 1/8"-.005. "No complaints" say the DiMaggios.



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Seaville Sand & Stone Co., Palermo, N. J. uses an Eagle 29" x 18' Fine Material unit with 24" screw flights, to wash, classify and dehydrate a daily average of 200-tons of pit run material. As with the DiMaggios, the readily adjustable long Weir on the Eagle Washer gives them retention or wasting of fines as desired. Rising water currents in tub plus scouring action of screws assure clean material.

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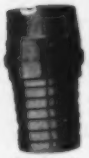

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personal mention

PIERRE A. KYPKE retired from U. S. Steel's Universal Atlas Cement Company on May 31 after 44 years of continuous service in the Minneapolis sales office, according to an announcement made by Paul L. Bowlin, sales manager.

A native of Waterloo, Wis., Mr. Kypke received his B. A. degree in 1908 at the University of Wisconsin. He went to Minneapolis in July, 1908, to represent Universal Portland Cement Company, which had opened an office there the previous year. (In 1929 the firm became the Universal Atlas Cement Company.) During the first six years Mr. Kypke travelled throughout the district—Minnesota, the Dakotas, Wisconsin, and Michigan—and after sales work in the Minneapolis office he became assistant sales manager in 1939. Mr. and Mrs. Kypke will move next month to Jacksonville, Fla.

Mr. Kypke was honored by his company associates at a dinner at the Radisson Hotel, with representatives of the Duluth cement plant and officials present. Later a group of Minnesota and Wisconsin general contractors and material dealers gave a farewell dinner at The Town and Country Club, St. Paul.

C. T. JOHNSON was recently appointed district sales manager for the General Crushed Stone Company, in charge of its Wilkes-Barre, Pa., office. (This office handles the sale of bituminous concrete and crushed stone produced at the firm's White Haven, Pa., plant.)

Mr. Johnson joined the General Crushed Stone Company in 1946 as assistant district sales manager for bituminous concrete and crushed stone sales in the territories served by its plants at Horseheads, Corning, and Etna, N. Y. Previously he had served as materials engineer for the Scranton and Allentown (Pa.) districts of the Pennsylvania State Highway Department.

A. G. BARRES, who has been with

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CHICAGO STEEL FOUNDRY CO.
Kedzie Ave. & 37th St., Chicago 32, Ill.

Makers of Alloy Steel for Over 40 Years

General Crushed Stone for nearly 50 years, has been appointed district sales engineer in the Wilkes-Barre office. He will also hold the post of consultant to Mr. Johnson.

LESTER CROWN, a director of the Marblehead Lime Company, Chicago, and an officer of Chicago's Material Service Corporation, has been elected a director of the Empire State Building Corporation of New York.

Mr. Crown's father, Colonel Henry Crown, chairman of the board of directors of Material Service Corporation, State Building Corporation last December.

The appointment of CLIFFORD V. TOBIN as executive secretary of the New York State Crushed Stone Association, Inc., effective July 1, has been announced by that organization.

WILLIAM F. ATKINS has been appointed sales manager of Lehigh Materials Company, Lansford, Pa., producers of Lelite lightweight building aggregate, it was announced by John C. Bolinger Jr., vice-president and manager.

Mr. Atkins joined Lehigh Materials Company earlier this year as district sales manager for Maryland, Pennsylvania, and New York.

THOMAS M. WARE and EDWARD D. MCDOUGAL JR. were recently elected vice-presidents, and C. M. EDWARDS was elected secretary of the International Minerals & Chemical Corporation at a meeting of the board of directors, according to announcement by Louis Ware, president.

Thomas Ware has been chief engineer of the corporation since 1949 and in his new capacity will be vice-president in charge of the Engineering Division. He is a son of Louis Ware. Mr. McDougal has been secretary and general counsel of the corporation since 1947, and in his new capacity as vice-president also will continue as general counsel. Mr. Edwards has been associated with International Minerals since 1929, serving as manager of the tax department and assistant secretary of the corporation.

J. PAUL MARTIN, formerly assistant materials engineer of the Delaware State Highway Department at Dover, has been appointed to the Bituminous Concrete Division of the General Crushed Stone Company of Easton, Pa.

Changes in the general office of the Dewey Portland Cement Company, 424 Nichols Road, Kansas City, Mo., include the retirement from active duty of M. V. WARD, treasurer and chief accountant of the company. His service has extended over 32 years. His duties as auditor and office manager will be taken over by L. R. MCDANIEL.

DANIEL W. TYLER has become treasurer of the company. He will continue also as chief clerk in the sales department, a position which he has occupied since the advancement from that post of WILLIAM L. PORTER to director of safety for the Dewey plants at Davenport, Iowa, and Dewey, Okla.

WILLIAM F. LANGEFELD has been appointed director of purchasing for the Material Service Corporation of Chicago, Ill., according to an announcement by Irving Crown, executive vice-president of the company. Mr. Langefeld was formerly director of purchasing for the Austin-Western Company of Aurora, Ill.

HORACE A. SAWYER, recently elected president of Lone Star Cement Corporation, was cited by New Orleans civic leaders at a dinner held in his honor just before he left for New York City to assume his new duties. He received a testimonial plaque jointly inscribed by the Chamber of Commerce of New Orleans area, the Dock Board, International House, and the New Orleans Railroad Terminal Board. The inscription read in part: "Given by fellow citizens and friends of New Orleans in appreciation of civic endeavors in his adopted community in the state of Louisiana."

MARVIN C. GRISHAM, who was formerly works manager for the United States Gypsum Company at its Midland, Calif., plant, has been transferred to Boston, Mass., where he will serve in the same capacity at the company's Charlestown plant.

For Ag-Lime or Other Tough Fine Screening . . .

***FlexElex* Plus Leahy Snap-Action Assures Low Cost Production**

By keeping the mesh of the screen cloth wide open for maximum capacity at all times, the FlexElex equipped Leahy so substantially steps up production in screening damp fines that production costs nose-dive.

This achievement is made possible by (a) differential snap action that frees the mesh of intermediate size wedging particles and (b) electrically heated wires that avoid build-up and eventual blinding by damp fines.

Hand beating of screen cloth is eliminated, multiplying the useful life of the jacket assembly. Production records are astounding even experienced engineers. For complete information, ask for Bulletin 15-J.

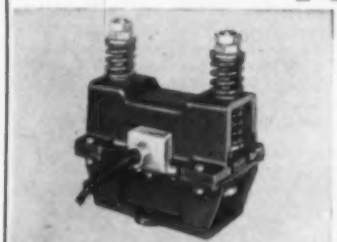
The DEISTER CONCENTRATOR COMPANY

The Original Deister Company, Inc. 1906

911 Glasgow Avenue, Fort Wayne, Indiana

SYNTRON

Controlled "Vibration"



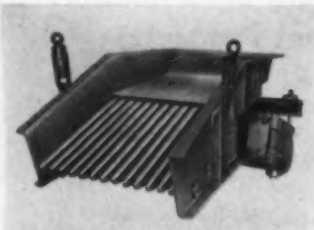
BIN VIBRATORS
Make Stubborn Materials Flow Freely

VIBRATORY FEEDERS
Finger-Tip Control of the Rate of Bulk Material Flow

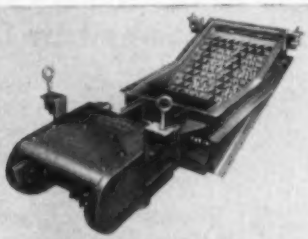
For Material Handling Efficiency

Free-flowing bins, hoppers and chutes—variable control of material flow, feeding from pounds to hundreds of tons per hour—coarse separation and scalping—weigh feeding and batching—of bulk materials, hot or cold, dry or damp, coarse or fine—add up to faster processing at lower costs.

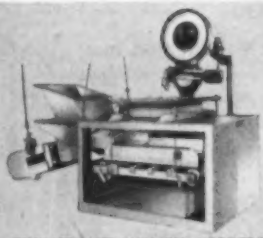
Syntron Electromagnetic Vibration without the use of wearing mechanical parts such as spiral screws, cams, etc., assures cheaper operation and low maintenance.



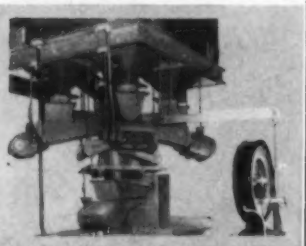
VIBRATING GRIZZLIES
Both Feed and Scalp With One Unit



VIBRATING SCREENS
Wet or Dry — Single or Multiple Decks



"CONSTANT WEIGH" FEEDERS
Accurate, Continuous Feed by Weight



"Automatic" BATCH WEIGHING Scale—Controlled Vibratory Feeders

Write for Your FREE Copy — Syntron Catalog No. 519

SYNTRON COMPANY
385 Carson Avenue Homer City, Penna.

S. Foster Bartlett, president of the Badger Perline Products Company, Milwaukee, Wis., has been appointed a member of the concrete technical committee of the Perlite Institute.

Alfred L. Bode, chemist at the Hannibal, Mo., plant of Universal Atlas Cement Company, was awarded a 40-year service medal at a recent departmental safety meeting. Mr. Bode was employed May 29, 1912, as a clerk in the packing department. His is the 13th 40-year medal to be awarded at Hannibal.

Erle P. Halliburton Jr., vice-president of Halliburton Portland Cement Co., has been appointed to the Southwestern Regional Advisory Committee of the National Association of Manufacturers.

Arthur C. Roy has been appointed general traffic manager of the Pennsylvania Glass Sand Corporation. For the last six years he served the Eastern Gas & Fuel Association in a similar capacity.

John P. Hopkin, who was formerly a quarry foreman for the Ideal Cement Company at Devil's Slide, Utah, recently retired from his duties after 43 years of service. At the time of his retirement, Mr. Hopkin was a shovel operator.

William Engs former director of the chemical engineering division of American Cyanamid Company's Stanford (Conn.) Research Laboratories, has been named manager of operations of the firm's two plants at Niagara Falls and of the limestone quarry at Ingersoll, Ont., Canada.

Robert E. Vervacke, manager of the United States Gypsum Company plant at Evans, Wash., has resigned to become vice-president of the Quincy Corporation, Quincy, Wash. The latter firm is engaged in the manufacture of diatomaceous earth products.

Macy Smith will become manager of the Evans gypsum plant.

The following changes in personnel were announced recently by Cris Dobbins, president of the Ideal Cement Company:

E. F. Saulsberry, now general purchasing agent, remains in charge of all purchasing.

J. B. Turtle has been promoted from assistant purchasing agent to purchasing agent in the Denver office.

D. E. Norblom, formerly chief clerk, is now assistant purchasing agent in the Denver office.

S. J. Houlihan, who was formerly buyer in the Denver office, is now assistant purchasing agent, Gulf Division, with headquarters in New Orleans, La.

M. P. McComas was promoted from buyer in the Denver office to the post of assistant purchasing agent, Pacific Coast Division (Pacific Portland Cement Company) at San Francisco.

G. H. Dent

Bernard E. Gray, president of The Asphalt Institute, has announced the promotion of GEORGE H. DENT to the post of division engineer, with supervisory duties over Division I of the Institute's field engineering staff. His office continues at Mills Building, Washington 6, D. C.

Division I includes New England, the remainder of the Atlantic seaboard, and Tennessee, Alabama, Mississippi, and Louisiana. This territory is serviced by five district offices, staffed by Institute engineers in Boston, New York, Washington, Atlanta, and New Orleans.

Mr. Dent, who has directed local Institute engineering activities in his district from headquarters in Washington, D. C., since his appointment in 1941, is the senior engineer in point of service of the entire field enginering staff.

R. F. Bourne

The appointment of ROBERT F. BOURNE as general sales manager of the Claymont Steel Corporation, a subsidiary of The Colorado Fuel and Iron Corporation, has been announced by F. S. Jones, vice-president in charge of sales, at the executive offices of the corporation in New York.

Prior to joining C. F. & I., Mr. Bourne was employed as an engineer in the Bureau of Reclamation. He was later transferred to the Federal Power Commission in Washington, D. C. From 1941 to 1946 he served in the U. S. Army, attaining the rank of lieutenant colonel.

In 1946 he joined The Colorado Fuel and Iron Corp. as a sales engineer. He has held various posts—manager of export sales, manager of rolled product sales, and assistant to the general manager of sales of the Claymont Steel Corporation.

Mr. Bourne succeeds RICHARD M. WORTH, who has resigned to operate his own business. Mr. Bourne will continue to have headquarters in the Claymont sales offices, Claymont, Del.

At a banquet attended by 1,000 Oakland, Calif., civic and business leaders HENRY J. KAISER was recently awarded the Cross of the French Legion of Honor by France's Minister Plenipotentiary Roger Seydoux.

This honor was accorded Mr. Kaiser as a mark of the gratitude of France toward the man who made possible the sending of supplies, arms, and other necessities, in Liberty and Victory ships, during World War II.

Most leading makers of heavy-duty earth moving equipment specify Johns-Manville Industrial Friction Materials

Here are good points to remember when it comes time to replace clutch and brake friction materials on your machines . . .

By far the majority of earth-moving machine manufacturers choose Johns-Manville Industrial Friction Materials. That's not surprising, actually J-M Friction Products have set records for long service and low-cost operation. They are *engineered* for the job—specially formulated for trouble-free performance and maximum working life.

And Johns-Manville's rigid manufacturing and inspection controls provide real insurance of uniformly high quality.

If you want to be sure that your own equipment will continue to give the excellent service built into it—take a tip from the machine maker. Replace only with genuine Johns-Manville Friction Materials.

Write for your copy of *"Johns-Manville Industrial Friction Materials"* FM-12A. It contains a wealth of important application and performance data. Address: Johns-Manville, Box 60, New York 16, New York.

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INDUSTRIAL FRICTION MATERIALS

No. 1 With Leading Manufacturers

new machinery and supplies

PIT AND QUARRY

● Swamp Tire

R. G. LeTourneau, Inc., Peoria, Ill., has developed a special swamp tire for use on heavy equipment operating on soft ground. The tire is a special 48 x 68 in trade language. It is more than 10 ft. high and 4 ft. wide, and operates on a pressure of about 15 lb. The tire is manufactured by the Firestone Tire and Rubber Company, Akron, Ohio, to the specifications of LeTourneau.

The tire is capable of carrying a load of 17,500 lb. and at speeds up to 20 m.p.h. It weighs 1,482 lb. and is used with a low flange, wedge-type wheel which makes tire changing possible under adverse conditions.

● Dynamite Spacers

Dynamite spacers of plastic have been developed by the Irvington Varnish and Insulator Company, 6 Argyle Terrace, Irvington 11, N. J.

The spacers are made of plastic tubing and inserted between the dynamite sticks as they are loaded in the hole. The charge is detonated in the regular way, and it is stated that the blast is propagated right to the bottom of the hole without difficulty. A saving in dynamite has been made in one quarry of nearly 30 percent by the use of these spacers.

● Side Dump Bodies

Mechanical side-dump truck bodies for heavy-duty work have been announced by the Galion Allsteel Body Company, Galion, Ohio.

The "Roll-Over" bodies are mounted on self-contained outriggers which engage the channel tracks on the unit, with teeth on the front and rear outriggers to prevent shifting of the frame. A locking plunger holds the frame in place as well as spring loaded chains on each side of the body. For unloading, the safety chain is released on the opposite side and the plunger is pulled

down. This permits the body to roll over and discharge.

These bodies can be installed on trailers or dolly trailers for use in single or multiple operation.

● Heavy Equipment Trailer

A method of loading and hauling heavy two-wheeled equipment such as tractor-scraper combinations has been developed by the Martin Machine Company, Kewanee, Ill.

The method utilizes a modified form of the "Folding Gooseneck Trailer" and is known as the "F4T-21". It has removable wheel chocks on the platform, and the rear kick-up has been redesigned for clearance and load distribution.

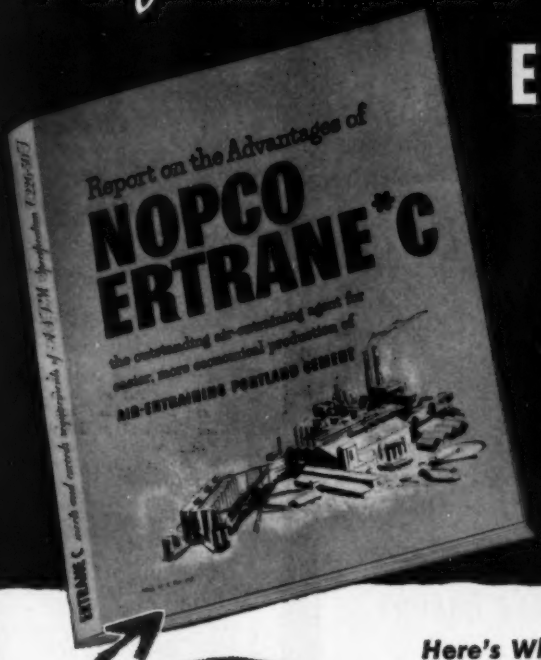
In loading, the gooseneck is lowered and the front chocks removed. The tractor-scraper pulls alongside and slightly ahead of the trailer. The tractor then backs onto the trailer, jackknifing the scraper. When in place, the tractor wheels are chocked and the gooseneck is raised and placed on the fifth wheel of a truck. When the trailer is hauled away, the scraper swings into position in back of it. While modified for two-wheeled equipment hauling the trailer is equally as useful for hauling other types of equipment. The axle load is said to keep within legal limits.

● High-Pressure Gun

A gun for high-pressure lubrication and for cracking frozen or clogged bearings has been introduced by the Lincoln Engineering Company, 5702 Natural Bridge Avenue, St. Louis 20, Mo.

The gun provides a range of pressure up to 10,000 p.s.i., with one-hand operation. A long coupler permits operation in difficult locations. All types of gun lubricants can be handled in all weather. Filling and cleaning have been simplified.

Performancewise- **NOPCO ERTRANE*C is the most economical Air-Entraining Agent on the market**


Report on the Advantages of
NOPCO ERTRANE*C
the outstanding air-entraining agent for easier, more economical production of
AIR-ENTRAINING PORTLAND CEMENT
ERTRANE C

THIS FREE BOOK, just published, includes the unabridged report on tests made by the fully qualified laboratories of E. L. Conwell and Company, Philadelphia. Send for a copy.

Here's Why...

(a) It is only necessary to add Ertrane C to water and stir until dissolved.

(b) No additional chemicals are required at any stage.

(c) The feed system remains clean when Ertrane C is used—no time lost purging the system.

Profit by filling out the attached coupon and obtaining full information about Ertrane C—the new, economical air-entraining agent immediately available from Nopco's plants at Harrison, N. J., Chicago, Cedartown, Ga., and Richmond, Calif.

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Gentlemen:
I am interested in learning more about Ertrane C.
Will you kindly—
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☐ have your representative call.

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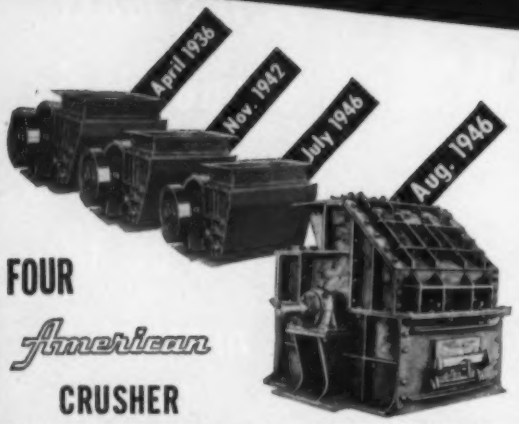
More "CRUSHING" FACTS ON American CRUSHER PERFORMANCE



FOUR American CRUSHER INSTALLATIONS BY TEXAS QUARRY... PROVE THAT *Americans* REALLY PAY OFF!

Four in a row! Yes, since 1936, this southwestern quarry has turned to American each time its operations called for expanded production.

To date, nearly five million tons of limestone have been reduced by these four crushers. Here are the individual performance records:

TYPE	30-40	30-40	30-40	AC-S-4
Age	14½ yrs.	9 yrs.	5½ yrs.	5½ yrs.
TOTAL TONNAGE	2,175,000	1,350,000	605,000	2,337,500

Each crusher had to pay off in tangible productivity to justify three repeat orders. What better proof of American Crusher dependability, efficiency and economy? Let American investigate your crushing needs. It will make dollars and sense.

WRITE for "Better Stone Crushing" Bulletin

American PULVERIZER COMPANY

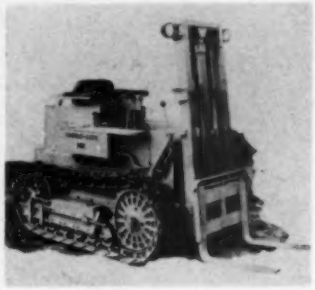
Designers and Manufacturers of Ring Crushers and Pulverizers

1059 MACKLIND AVENUE • ST. LOUIS 10, MISSOURI

• Crawler Lift Truck

A crawler-type tractor with a fork lift is the newest item in the line of the American Tractor Corporation, Churubusco, Ind. The new machine, the "Terra-Lift", is produced in two sizes, and a third is being planned.

The Terra-Lift is claimed to combine the soft-going ability of the crawler

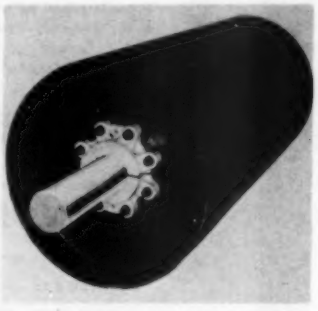


tractor with the material-handling features of the lift truck. In addition to the regular forks there are several attachments that add to the versatility of the machine such as bulldozer, angledozer, loader, snowplow, and rubber track shoes.

The Terra-Lift is currently available in the Model M-2, which has a 2,000-lb. capacity and an 8-ft. 7-in. lift; and the Model M-4, which has a 4,000-lb. capacity with a 6-ft. lift. A larger model that will probably have a 6,000-lb. capacity and a 12-ft. lift is being planned. It is equally useful inside or out and can be useful in unpaved storage yards.

• Tapered-Hub Pulley

A line of heavy-duty conveyor pulleys has been brought out by the American Pulley Company, Philadelphia 29, Pa. The type "HD" pulleys are for large



installations where high horsepowers and tonnages occur.

The hubs are of split-tapered construction for speed and ease of installation. They are drawn into position by eight alloy-steel cap screws that pull the tapered hub tight to the shaft. No keyways are needed. The pulleys are available in standard or non-standard sizes.

• Industrial Fan

An industrial fan that is built for rugged operation is available in 11 sizes ranging from 670 to 44,000 c.f.m. and up

to 16 in. of water gauge pressure. The fan is a product of Westinghouse Electric Corporation and is being made by the Sturtevant Division, 200 Readville Street, Hyde Park, Boston 36, Mass.

The fan is equipped with an air-handling, a material-handling, or a long-shavings wheel. The air wheel is recommended for exhausting smoke fumes, and light dusts. The material-handling wheel is for moving air containing granular materials, while the long-shavings wheel is for long, stringy materials. The fans may be had with bolted or quick opening doors, flanged outlets and inlets, and outlet dampers. A variety of coatings are listed, and special metals can be used for explosive or corrosive conditions. Cooling accessories are optional for high-temperature service.

● Body and Hoist

A medium-duty line of truck dump bodies and hoists has been brought out by the Converto Manufacturing Company, Third & Green Streets, Cambridge City, Ind.

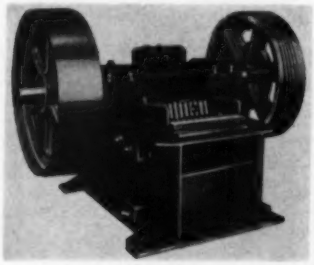
The new line is designed for trucks of 1½- to 2½-ton capacities, and features

a direct acting hoist for medium loads and a double arm type for heavy loads. Both raise the body to a full 60 degree dumping angle. The bodies have 8-gauge steel floors and are 6½ ft. wide. They are designed for rough service.

● Light Weight Jaw Crusher

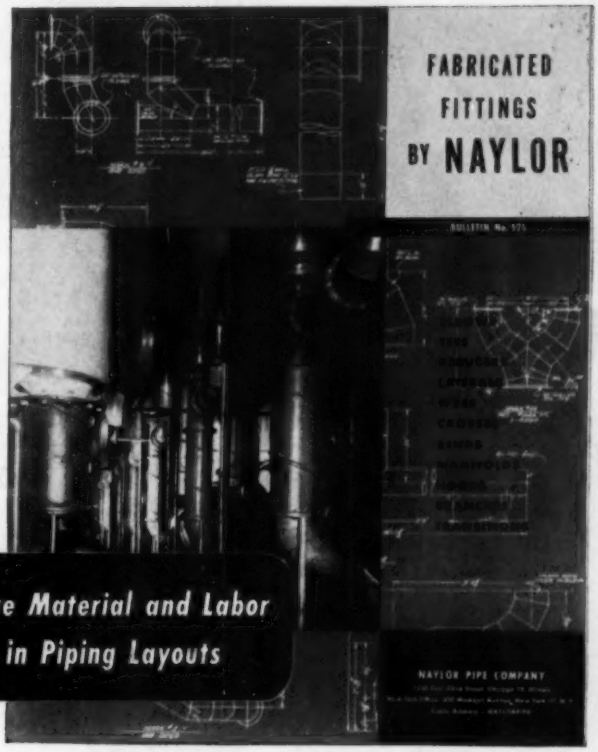
A plain bearing jaw crusher featuring a pressed steel base has been announced by the Pioneer Engineering Works, Minneapolis 13, Minn.

Other features of the 10-in. by 16-in. crusher are reversible manganese steel jaw plates; felt oil seals on each end of each bearing; bronze sleeve pitman bearing; bronze-bottom, babbitt-top side bearings; and a productive capacity of 4 to 40 t.p.h. The weight is 3,350 lb.



Get this GUIDE to

FABRICATED FITTINGS



Write for this helpful bulletin on Naylor Fabrication Service. It presents data on standard and special fittings for lightweight pipe and offers practical ideas to simplify piping layouts. Included are special fabrications to save time, material and labor through eliminating numerous flanged joints and combining many fittings into one integral unit. Ask for Bulletin No. 525.

NAYLOR PIPE

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1257 E. 92nd St., Chicago 19, Ill.
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NAGLE PUMPS

NAGLE PUMPS, INC.
1257 CENTER AVENUE, CHICAGO HEIGHTS, ILLINOIS

PUMPS FOR ABRASIVE AND CORROSIVE APPLICATIONS

CERTAINLY YOU GET MORE FOR YOUR MONEY WITH UNIVERSAL SCREENS!

That's true in first cost, in maintenance and in operation.

BUT THE IMPORTANT THING IS THE DEPENDABILITY OF THESE PIONEER VIBRATORS . . . in giving you cleaner separations, higher capacity per square foot of screening area, and year after year of trouble-free service! They are easy to install and flexible in handling a wide range of screening jobs.

Two-bearing, eccentric action at 1800 rpm; only six lubrication points on the whole machine; mesh applications rapid and inexpensive; weight of machines range from 600# to 1300#.

Write today for Catalog #109 on Screens & Screening.

UNIVERSAL VIBRATING SCREEN CO.

RACINE — WISCONSIN

● Single-Stage Pumps

Improvements in the line of single-stage, double-suction pumps have been announced by Ingersoll-Rand, 11 Broadway, New York 4, N. Y.

These pumps, the Class "DMV" and the "DHV", incorporate double mechanical shaft seals with sealed, pre-lubricated ball bearings. The Class

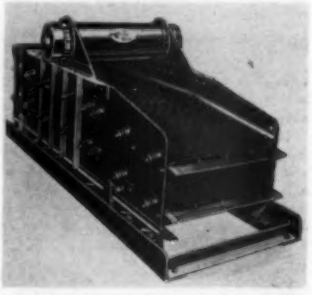
DMV is built for medium heads, and the Class DHV is for high heads. They are designed for general hydraulic service at temperatures up to 200 deg., pressures to 150 p.s.i. and capacities to 2100 g.p.m. They are available in 3-, 4-, 5-, and 6-in. sizes. The double shaft seals eliminate stuffing boxes and prevent air leakage when the pump is operating on suction lift.

● Heavy-Duty Scalping Screen

A scalping screen for heavy-duty applications has been brought out by the Deister Machine Company, 1933 E. Wayne Street, Fort Wayne, Ind.

The "UHS" scalping screen features cushioned vibration, automatic screen cloth tension, two-bearing construction, elliptical-throw action, and "Unitized Headmotion".

The motion of the screen throws the material toward the discharge end when



it first enters and causes a thinning of the bed. In the center the elliptical throwing motion becomes circular, bouncing the material for stratification efficiency. Toward the end the elliptical throw reverses to a holding action to permit maximum grading.

● Front-End Loader

A tractor-operated industrial loader with a lifting capacity of 9 cu. ft. or 1,000 lb., and a lifting height of nearly

11 ft. has been added to the line of Dearborn equipment designed specifically for use with Ford tractors.

The hydraulic pump for the loader is mounted on the tractor and operates through two levers which give finger-tip control. The front end attachment can be used to handle a snow bucket, a snow plow, forks or a crane, as well as the standard materials bucket. The loader is a product of the Dearborn Motors Corporation, Birmingham, Mich.

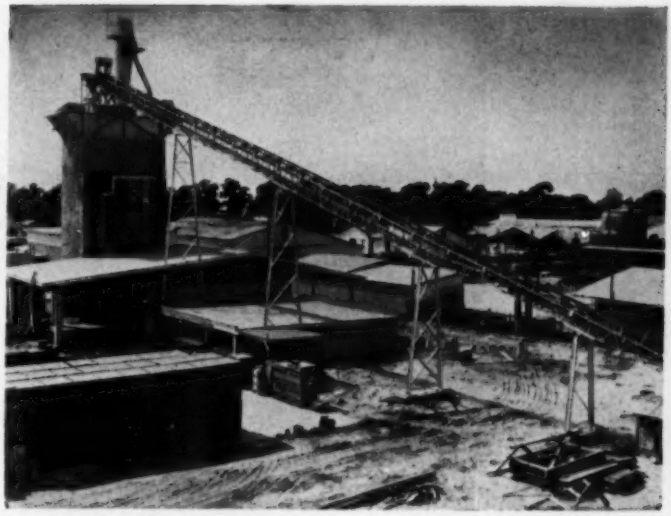
● Portable Hot-Mix Plant

A highly portable machine that performs the function of a small hot-mix plant is being introduced by the Barber-Greene Company, Aurora, Ill.

The machine, the "Mixall", is mounted on a two-wheel chassis for ease in towing or moving. It contains a skip that is only 14 in. high for ease in loading by hand or wheelbarrow; a revolving rotary drying drum heated by oil burners; a twin-shaft pug mill for mixing of the dried and heated aggregates; and the necessary controls for producing a high-type bituminous mix.

The Mixall has a capacity of up to 5 t.p.h. of hot mix material, depending on the amount of moisture in the aggregate, or up to 10 t.p.h. of cold mix material. It may also be used for drying and heating purposes only or for mixing concrete including low slump formulas.

Designed to supplement the large stationary plants, the Mixall can be towed to the job site or spotted at a convenient location and discharged into trucks. Power for the machine is supplied by gasoline, diesel, or electric motor. It is expected that this machine will prove to be useful in road repair, etc.



DUSTUBE® collector

saves its cost quickly, ventilating this combined block and ready-mix plant

PAID *through savings*

The Sarasota Concrete Co. of Sarasota, Florida, was recently described in a magazine article as "One of the best designed combined block and ready-mixed concrete plants we have seen in some time." A two-year old concern, it has the most modern and efficient equipment available. For instance, a Dustube Collector is used for completely removing all dust from its plant. It is ventilating such operations as a Besser Mixer, cement batch weighing, and the discharge of aggregates and cement into transit mix trucks. The Dustube Collector has solved their dust problem completely and eliminated the dust condition. Material recovered is returned to the mixer in such quantities, that it is estimated savings in material costs alone will pay for the collector in less than two years.

With the Dustube Collector, there is no dust dispersed into the atmosphere. Virtually 100% efficient, the Dustube is also simple in design to keep operating and maintenance costs to a minimum. It has but few working parts. Shaking can be automatically controlled and the collected material reused or disposed of in dry state without thickening, filtering or drying.

For complete information on Dustube Collectors, send today for Catalog 372.

American WHEELABRATOR & EQUIPMENT CORP. — dustube COLLECTORS

430 S. Byrkit St., Mishawaka, Ind.

HEWITT-ROBINS

A "Packaged Unit" to Meet Your Belt Conveyor Needs

The HEWITT-ROBINS SECTIONAL BELT CONVEYOR

Easy to Assemble ***Pre-Engineered***

Strongly Constructed

Here is the complete belt conveyor that will meet the requirements of both small and large operators handling bulk materials.

Easy to Assemble: Your own men can assemble, disassemble, move, extend or shorten it quickly and easily.

Take Your Choice: Select the right belt conveyor to fit your own particular needs—you have a choice of 3 types of drives—wide selection of intermediate truss lengths—your choice of idlers—(4", 5" or 6" diam.)—4 belt widths (18", 24", 30" or 36") in lengths up to belting limitations.

Factory-Assembled Units: All truss side members are factory-welded as complete units and are jig-drilled for easy erection—head and tail units completely assembled with machinery in place.

Standard Equipment: Self-cleaning, protective decking for return strand supplied for the entire conveyor line.

Optional Equipment: Hood covers—easily attached loading hopper.

Only Hewitt-Robins is able to take single unified responsibility for a belt conveyor installation—only Hewitt-Robins manufactures both machinery and belt.

Get the complete story. Write for Bulletin No. 132-A.

HEWITT-ROBINS HR **INCORPORATED**

STAMFORD, CONNECTICUT

● Drilling Assembly

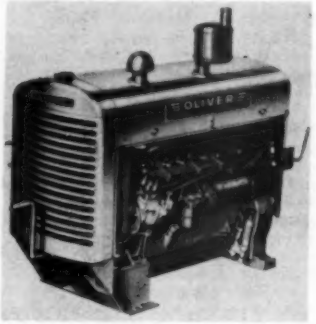
A drilling assembly called the "Uni-Drill" has been developed by the Worthington Corporation, Harrison, N. J. The assembly consists of a crawler type tractor such as the Caterpillar D7 or D8 on which is mounted a Worthington M80 2-stage air-cooled air compressor, and a Worthington WD 40 4-in. drill mounted on a 12 ft. chain feed. The compressor is placed at the rear of the tractor and the drill at the front.

The frame holding the drill can be raised by a cable for transporting, and arrangements are made to drill wet or dry holes up to 30 ft. deep and at any angle. All supplies are carried on the tractor, and only the one machine is needed permitting a saving in moving time.

● Power Unit

A series of power units developing 73 hp. has been announced by The Oliver Corporation, 400 W. Madison Street, Chicago 6, Ill.

The new series, the "199", is available for gasoline and diesel fuels, and LP models are being engineered. The 199



is a six-cylinder engine with overhead valves, replaceable cylinder liners, 4-in. bore and stroke, and 302-cu. in. displacement. Continuous duty is 1,800 r.p.m., with intermittent duty at 2,000 r.p.m.

Interchangeable parts between gas and diesel models include cylinder blocks, pistons, connecting rods, and mounting bases.

These units are suggested for generators, pumps, crushers, compressors, loaders, conveyors, and standby power.

● Diesel Lube Oil

Shell Oil Company, 50 W. 50 Street, New York, N. Y., has announced a new lubricating oil for diesel engines and for gasoline engines used in stop-and-go, low-temperature service. The oil was developed to meet the problems of diesel engine lubrication suggested by the Caterpillar Tractor Company.

Shell "Rimula" oil is said to contain a combination of additives that reduce ring sticking and piston lacquer, combat sludge formation, and extend engine life by reducing cylinder, ring, piston, and bearing wear. It is especially suitable to combat conditions created by low loads, low temperature operation, and high sulphur fuels.

● Portable Generator

The portable generator sets made by the Wincharger Corporation, E. 7th and Division streets, Sioux City, Ia., have been further improved by the development of a wheelbarrow type base that attaches to the generators and permits easier moving, especially over rough surfaces.

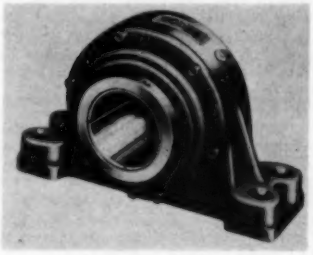
The generator sets have been increased in efficiency by using a belted drive that permits higher engine speeds and a reduction in weight. The standard cradle base of the generator is made so that the wheelbarrow base may be easily attached within a few minutes for transportation as a wheeled unit. "Winco" generator sets are made in a range of sizes to 30 kw. for auxiliary or primary service for lighting or power applications.

● Steel Pillow Blocks

A line of all-steel pillow blocks that combine high load capacity with compactness and reduced weight has been announced as a result of the pooled efforts of Timken Roller Bearing Company, and the Dodge Manufacturing Company.

The new line will be marketed by the Dodge Manufacturing Company, Mishawaka, Ind., as the "Dodge-Timken All-Steel" pillow block in shaft sizes from 2 $\frac{3}{16}$ in. to 10 in.

Features of the pillow blocks are self-aligning bearings with spherical outer race; double piston ring seals to preserve the lubricant and keep out dirt; high radial and thrust capacities; resistance to



heavy shock loads; and factory assembly ready for installation. They are designed for use on crushers, large conveyors, and similar heavy machinery.

Rock Bit successfully pioneered the BIG 4-inch carbide, special quarry bit. Rock Bit engineers have complete facts on its use. Investigate!

the Rok-Bit field-proven way. We propose bench drilling—using 4-inch, carbide Rok-Bits on 1½-inch steel—with any standard wagon drill drifter. For details, write! Rock Bit Sales & Service Co., 2514 E. Cumberland St., Philadelphia 25, Pa. 350 Depot St., Asheville, N. C.

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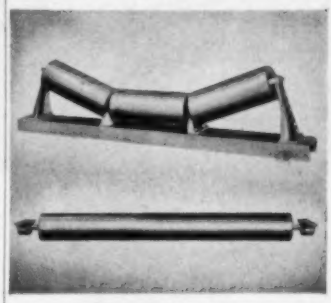
HEWITT



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More features: Sturdy construction assured by Channel Base, Rigid Truss design—One-Shot Lubrication from either side—Triple Grease Seal—over-sized bearings.

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Better availability: *What* you want *when* you want it. Strategically located stocks for your convenience throughout the country.

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DIVISIONS: Hewitt Rubber • Hewitt Rostfoam®
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ROBINS

● Portable Plant

A portable plant designed to produce two sizes of graded aggregate and washed sand has been annuonced by the Iowa Manufacturing Company, Cedar Rapids, Iowa. It was developed to supply Army Engineers with material needed for military projects and has been built to provide for mobility and simplicity of operation.

The Cedarapids Model "DJ-50" is a three-unit plant consisting of a crushing and screening unit, a single-screw, fine material washer, and a two-compartment bin and conveyor unit. All units are completely portable. Capacity of the plant ranges up to 50 t.p.h.

The crushing and screening plant features a new dual jaw crusher, the "1840-640", which has two crushing chambers—an 18- by 40-in. primary and a 6- by 40-in. secondary driven from the same eccentric shaft. It is said that this dual-jaw crusher can replace the jaw and roll crushers on other models by providing primary and secondary crushing in one machine.

● Rotary Compressors

The line of "Gyro-Flo" rotary portable compressors which was announced last spring by the Ingersoll-Rand Company, 11 Broadway, New York 4, N. Y., has been expanded by the addition of three models rated at 315, 210 and 105 c.f.m. These compressors are of two-stage oil-cooled, rotary sliding-vane design, powered by either gas or diesel engines in the larger two and gas only in the 105. Advantages claimed for the rotary type are reduced weight; elimination of valves, pistons, and rods; and an air supply free of pulsations.

● 22-Yd. Scraper

A tractor-drawn scraper of 22 cu. yd. heaped capacity or 19 cu. yd. struck is being manufactured by the Wooldridge Manufacturing Co. Sunnyvale, Calif.

The new model, the "TC-190", has

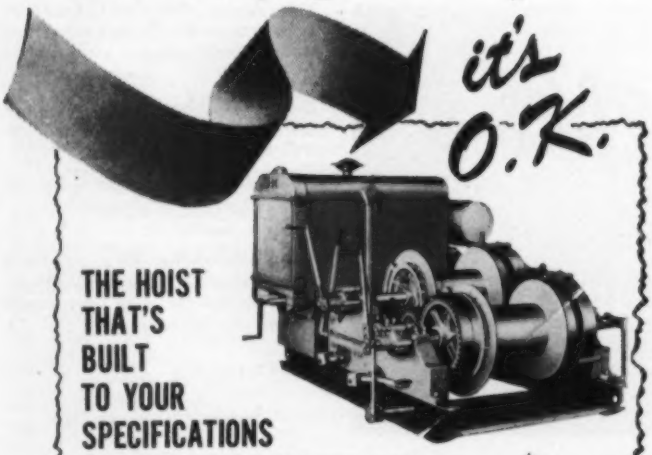
been designed for use with the largest tractors and to give larger loads. Side cutters are of manganese steel and oversize cutters are optional for tough materials. Other features are rapid loading and positive fast dumping.

● Dump Truck Hoists

A line of dump truck hoists and bodies has been brought out by the St. Paul Hydraulic Hoist, Minneapolis, Minn.

The new hoists are available in 14 sizes to handle loads from 6 to 25 tons. They feature low mounting height; low operating oil pressure; a roller-bearing drive mechanism; and a flexible sub-frame. The makers cite almost complete absorption of dumping shocks.

Matching bodies are made in a wide range of capacities. They feature box-type side braces and wrap-around sides for strength. The reinforced tailgate has offset hinges for dumping control.



THE HOIST THAT'S BUILT TO YOUR SPECIFICATIONS

DRUM: Single, Double, Three or 2 Drum Slack

POWER: Gasoline, Electric or Diesel

SPEEDS: Ft. Per Min. – 24, 150, 200, 240, 280, 500

HORSE POWER: 8, 18, 28, 50, 65, 80, 105, 125, 150, 175, 185, 230

CAPACITY – Lbs. – 1300, 2000, 3200, 5000, 7000, 9000, 12500, 15500, 19000

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O.K. CLUTCH & MACHINERY CO.

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● Front-End Loader

Rocking, scooping and lifting actions are all used to load the bucket of the "TL-50" Transo Load Master front-end loader, manufactured by the Transmission and Gear Company, 10421 Haggerty, Dearborn, Mich.

Other features of the new loader include full operator visibility, overall wheelbase of 44 in., elimination of engine clutch, planetary type reverse transmission, Ford engine, and a dumping height of 72 in. The overall width is less than 44 in.

It is claimed that the new loader is extremely maneuverable in narrow spaces such as inside cars and trucks and along narrow passages, and that the high lifting ability of the machine adapts it to many jobs.

● Stockpile Loader

A change to convert the Adams "Traveloader" from window to stockpile operation has been announced. The change consists of replacing the gathering wings of the windrow machine with a spiral-blade feeder.

The loader is self-propelled and uses curved blades on a chain drive to carry the material to a series of belt conveyors which convey and elevate the material. Height of the discharge conveyor is adjustable so that a truck of any height can be loaded. The feeder and the front of the loader are adjustable to accommodate various materials and loading conditions. The Traveloader is a product of the J. D. Adams Manufacturing Company, Indianapolis, Ind.

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High Material Handling Costs

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STEEL ELEVATOR BUCKETS

Continuous Type
(Style No. 2 shown)

Write Today. You will approve our Prices and our Service

Salem Type

STANDARD Steel Buckets "stand up like champions" in resisting abrasion and corrosion.

Rigidly built of top-grade steel. Reinforcing strip may be welded to bucket lip, and hard surface rod added, to insure extra service life.

High-economy STANDARD Buckets are available in all styles, types, sizes and gauges.

We are equipped to furnish new units or recondition present equipment at minimum cost.

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- TOUGHNESS AND DUCTILITY
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- BUILT AND DESIGNED WITH EXPERIENCED "KNOW HOW"
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Perfect sealing against outside dirt in all weather

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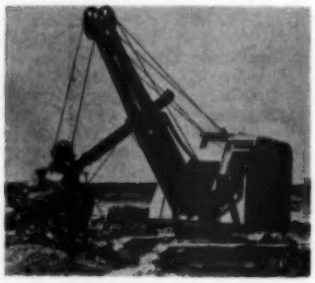
● Truck Engine

A high-compression truck engine with a compression ratio of 7.2 to 1 and developing 145 g.b.hp. has been announced by GMC Truck and Coach Division, General Motors Corp., Pontiac, Mich.

The engine, a six-cylinder type, weighs only 545 lbs. It has a 4-in. bore and a

4-in. stroke and has 301.6-cu. in. displacement. The large cylinder bore permits the use of larger valves, and a duplex carburetor provides good fuel atomization at all speeds. Special design of pistons, cylinder heads, and valve and spark plug locations have reduced "spark-knock" tendencies, so that full power can be attained on regular gasoline.

This engine, the "GMC 302," will be placed in the 2½- and 3-ton models of trucks and tractors. It has been widely used by the U. S. Army during the last two years.



● ¾ Cu. Yd. Shovel

Standard and heavy-duty models of the Gar Wood "75" excavator have been announced by the Findlay Division, Gar Wood Industries, Findlay, Ohio.

The new machines are rated as ¾-cu. yd. shovels or 20-ton cranes. They are convertible to shovel, crane, dragline, clamshell, trench hoe, or pile driver in the field and may be factory equipped with a foundation borer which combines belling and boring in one operation for footings and similar uses.

Among the features of the machine are power-actuated drum clutches; direct right angle drive; self-cleaning, non-clogging crawler tracks; worm-driven boom hoist with safety lock; all-welded box-section deck; and vacuum controls for steering and dipper trip.

The machines may be mounted on a 6 by 6 or 6 by 4 chassis for use as a truck crane.

trade notes

G. C. Wilder

At a special meeting of the board of directors of the Macwhyte Company, Kenosha, Wis., George C. Wilder was appointed a director, to fill the unexpired term of the late Jessel S. Whyte; he was also elected president of the company.

Mr. Wilder was vice-president and assistant general manager and has served in various capacities since joining the company in 1938.

Other company officials are: H. E. Sawyer, vice-president and treasurer; R. B. Whyte, vice-president in charge of operations; and R. P. Tyler, vice-president in charge of sales.

M. E. Ziegenhagen has been named advertising and sales promotion manager of Worthington Corporation, Harrison, N. J. Mr. Ziegenhagen has been associated with General Electric Corporation since his graduation from the University of North Dakota in 1937. Since 1946 he has been in charge of advertising and sales promotion for several of the product departments of General Electric's Schenectady plant.

Officials of Sterling Electric Motors, Inc., have announced the appointment of five additional distributors. They are: Alex Borders Machinery Company, 3724 First Avenue North, Birmingham 6, Ala.; Industrial Dairy Supplies, Inc., Buck & Pine Streets, Millville, N. J.; Prussack Electric Company, 1817 Pitkin Avenue, Brooklyn 12, N. Y.; Petro-Chemical Equipment Co., Inc., P. O. Box 6705, 2438 South Boulevard, Houston 5, Tex.; Elm Electric Supply Company, 49 Elm Street, Stamford, Conn.

The Mid-Summer Meeting of the Associated Equipment Distributors was held in Chicago on July 1. The meeting was devoted to management problems and governmental regulations. One session was concerned primarily with the revision of CPR 105, which had just been announced, and with ways of keeping books and records under various regulations. The national aspects of the highway situation were also covered. Another session covered discussion groups on a variety of subjects, and the sales aspect of construction equipment distribution was the topic of the closing session. About 200 members were present.

R. S. Stevenson

R. S. Stevenson was elected executive vice-president of the Allis-Chalmers Manufacturing Company at a recent meeting of the board of directors. He was formerly vice-president in charge of the Tractor Division.

The board elected Willis G. Scholl, formerly vice-president and general sales manager of the Tractor Division, to succeed Mr. Stevenson. Named to succeed Mr. Scholl was Frank Mussell, eastern territory manager of the division.

Mr. Stevenson has been associated with the Allis-Chalmers Tractor Division since 1933, when he joined the Kansas City branch as a salesman. Mr. Scholl joined Allis-Chalmers in 1936 as a salesman. Both men have held successively higher positions in the division. Mr. Mussell joined the company in 1936 as a blockman and has worked in numerous executive positions.

W. G. Scholl

Frank Mussell

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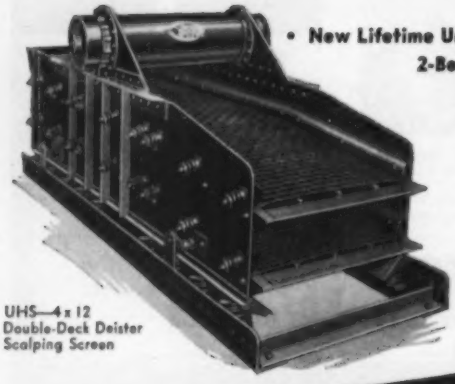
AT THE FRONTIERS OF PROGRESS YOU'LL FIND AIR REDUCTION PRODUCTS

New DEISTER
Heavy-Duty Scalping Screen



UHS—4 x 12
Double-Deck Deister
Scalping Screen

- **New Lifetime Unitized Headmotion—2-Bearing Construction—Runs In Bath of Oil**

Opposed Elliptical Throw • Powerful Vibration • Automatic Screen Cloth Tension • Vibration Fully Cushioned • Rugged Construction

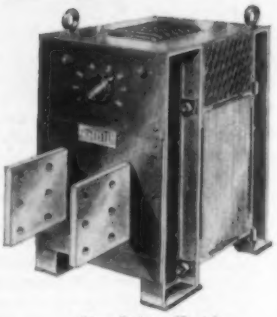
New DEISTER
Electric Heating Unit

for **SCREENING DAMP MATERIALS**

NO DOWN TIME for cleaning fine or medium screen cloth—you can screen fine, moist materials *continuously* with the new DEISTER heating unit.

GREATER CAPACITY—more tonnage goes through—you get better separation—because heated screen cloth *remains* open.

CUTS COSTS—In addition to saving cleaning time and labor costs, DEISTER heating units will lengthen life of your screen cloth up to three times by eliminating pounding or brushing to free it of blinding material. Get more details from your nearest Deister dealer, or phone, write or wire the Deister Machine Company, Fort Wayne, Indiana.



New Deister Electric Heating Unit.

DEISTER SCREENING

DEISTER MACHINE COMPANY
FORT WAYNE 4, INDIANA

A. C. Erlandson

Officials of the Kensington Steel Company, Chicago, Ill., have announced the appointment of A. C. Erlandson as territorial sales engineer for lower Michigan, northern Illinois, and southern Wisconsin.

Mr. Erlandson will offer his company's complete line of Oro and special manganese steel products for the quarry, gravel, mining, logging, and brick and clay industries He will maintain his office at Kensington Steel Company, 505 Kensington Avenue, Chicago.

St. Regis Paper Company has announced that a new multiwall bag plant at Tacoma, Wash., is now in production and will replace the plant at Seattle.

Occupying 81,600 sq. ft. of floor space, the new Tacoma bag plant has been built adjacent to the kraft paper mill and provides an integrated operation.

E. J. Lickwar

Announcement of the appointment of E. J. Lickwar as sales representative in the Pittsburgh, Pa., area has been made by the Alloy Steel Products Company, Inc., Linden, N. J.

Mr. Lickwar replaces Herbert V. Evans Jr., who was recently made district manager at Wilmington, Del. His headquarters will be at 318 Investment Building, Pittsburgh, Pa.

Clement W. Ankeny, manager of the Hardinge Company's central district office at Chicago for 23 years, has transferred to Phoenix, Ariz. He will be replaced at Chicago by Clarence B. Brown Jr.

Frank W. Lutter has been transferred to the western district office in San Francisco from the York, Pa., headquarters.

Euclid Road Machinery Company, Cleveland 17, Ohio, has announced the appointment of two distributors for its products.

Cunningham-Ortmayer Company, Milwaukee, is the new distributor for Wisconsin, with branches in Green Bay and Eau Claire. Butler-Sparks Equipment Company has been named distributor for Oklahoma. Its main office is in Oklahoma City and a branch in Tulsa.

The Heil Company, Milwaukee, Wis., has announced that Paul Miller, Washington (D.C.) sales manager, has been named sales manager of the Road Machinery Division. He replaces his brother, Robert Miller, who is leaving to become sales manager of Innes Equipment, Ltd., Toronto, Ont., Canada.

W. J. Roberts Sr.

William J. Roberts Sr. was recently re-elected president of the Traylor Engineering & Manufacturing Company, Allentown, Pa., for the 35th consecutive year. Mr. Roberts joined the Traylor Company in 1907, one year after its Allentown plant was established, as a sales engineer and was, for quite a few years, located in New York City.

He rose in the Traylor Company rapidly—to assistant sales manager, sales manager, second vice-president, first vice-president, and finally president, at the age of 35.

Neil Munro has arrived in Bombay, India, to become managing director of Dorr Oliver (India) Ltd., replacing P. M. Contant, who is returning to the United States on leave.

Harry Judson, formerly of the Central Industrial Division of North American Sales has been transferred to International Sales and has relieved Mr. Munro as technical representative in Johannesburg, South Africa.

T. D. Davis

Territorial change in the West Coast operations of the Crusher and Process Machinery Divisions was announced by Nordberg Manufacturing Company officials.

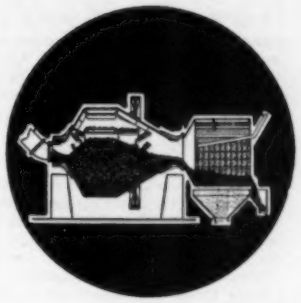
T. D. Davis, western branch manager of the Crusher and Process Machinery Divisions, will be in charge of the company's entire West Coast operation, including the Northwest territory formerly under the jurisdiction of G. E. "Gunnar" Jarpe, who was recently transferred to Duluth, Minn., as district manager of the North Central Territory.

Mr. Davis will retain his headquarters at the San Francisco branch office. He will be assisted by J. W. Crandall and L. O. Makholm, sales engineers.

The appointment of A. W. Ginther as general sales manager of the Wood Manufacturing Company, North Hollywood, Calif., has been announced.

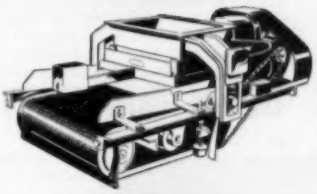
For the last 15 years Mr. Ginther was with the Harnischfeger Corporation as Los Angeles district manager.

Koehring Company Milwaukee, Wis., has announced the organization of a subsidiary company, known as Koehring Southern Company. The Koehring Southern Company has purchased the Chattanooga, Tenn., plant of the Norge Division of Borg-Warner Corporation, for the manufacture of power shovels and cranes.



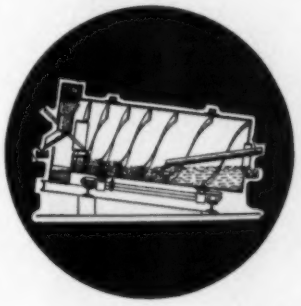
CONICAL SCRUBBER

Cleans by mass contact and natural displacement. Removes dirt and silt without wear on the scrubber. Classifying action of the cone holds back the large clay balls until properly disintegrated. Foreign materials, such as sticks, vegetation or large pieces of metal can do no harm. Power required is low, and water requirements are considerably less than that of other methods. Repair costs are negligible. Bulletin 37-A-8.



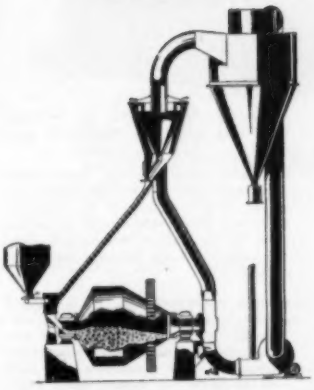
CONSTANT-WEIGHT FEEDERS

Regulate the feeding of materials at a constant-weight rate, rather than a constant-volume rate. The feeder automatically compensates for changes in specific gravity and bulking, due to moisture, which would cause irregular feeding. Bulletin 33-D-8.



COUNTER-CURRENT CLASSIFIER

Produces closer sizing and cleaner oversize because of its unique construction. It is a slowly rotating drum, on the inner surface of which is attached a screw flight. Coarse material is separated from the fines by gravity. Settled granular particles are rolled forward by the screw flight and washed with a counter-flow of wash water. Fines and wash water overflow through an opening at the discharge end. Oversize is elevated by buckets and discharged. Will operate in closed circuit with a grinding mill without the use of conveyors or pumps. Bulletin 39-B-8.



AIR CLASSIFIERS

The Hardinge Air Classifier, operating in conjunction with the Hardinge Mill, is a compact, self-contained unit of unusual efficiency. The material is conveyed without auxiliary apparatus to any convenient location in the building. The Hardinge "Loop" Classifier delivers products ranging from 50% to 90% minus 200 mesh. The Hardinge "Superfine" Classifier (illustrated) can produce 99½ plus % passing 325 mesh. Bulletin 17-B-8.

HARDINGE

COMPANY, INCORPORATED

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122 E. 42nd St. 24 California St. 205 W. Wacker Dr. 2016 First Ave. 200 Bay St.

The appointment of E. L. Mitchell as southwestern district manager of The Davey Compressor Company, has been announced.

E. L. Mitchell

Mr. Mitchell will be in charge of company operations in Texas, Louisiana, Arkansas, and Oklahoma. He was formerly associated with Fred Berryhill Equipment Company, Lubbock, Tex., the Conley-Lott-Nichols Machinery Company, Lubbock, Tex., and the Tri-State Equipment Company, El Paso.

Atlas Powder Company officials have announced the signing of a contract with the Army Ordnance Corps to furnish consultative service in connection with the reactivation of the Volunteer Ordnance Works, Chattanooga, Tenn., and to operate the works for the manufacture of T.N.T.

R. L. Hess Jr. has been elected a vice-president of The Rust Engineering Company by the Board of Directors. He was formerly secretary of the company.

Contracts have been awarded by the Tractor Division of Allis-Chalmers Manufacturing Company for construction of a modern, one-story fireproof building to house its Kansas City branch now located at 1224 West 12th Street.

The branch will be erected on a 12-acre tract of land 2 miles south of Independence, Mo., in an industrial area now under development by the Gulf, Mobile and Ohio Railroad in co-operation with local groups.

For the Blaw-Knox Division of Blaw-Knox Company, the following personnel changes in the construction equipment department have been announced:

S. M. Pare, who has been in the department for 22 years, has been appointed assistant manager. Recently he has been an assistant to R. P. McKenrick, manager.

C. F. Mittelstadt has been promoted from assistant chief engineer to chief engineer of the construction equipment department, replacing L. J. Sarosdy, who will devote full time to managing the steel forms department.

W. A. St. Clair

Appointment of Walter A. St. Clair to head Hyster Company's newly-created national accounts office in Chicago has been announced. Increased buying activity in the materials-handling field by firms of national scope is responsible for the move, company officials say.

Mr. St. Clair will devote full time contacting home offices and buying headquarters in the Chicago area. He has been with Hyster since 1945 and had factory training before joining the Sales Department.

The American Pulley Company has announced the promotion of Walter L. Connell to regional manager. Succeeding Mr. Connell as district manager in the Minneapolis territory, the company has appointed Gail E. Cogan, whose territory includes Minnesota, Iowa, North and South Dakota, Nebraska, and parts of Wisconsin, Michigan, and Canada.

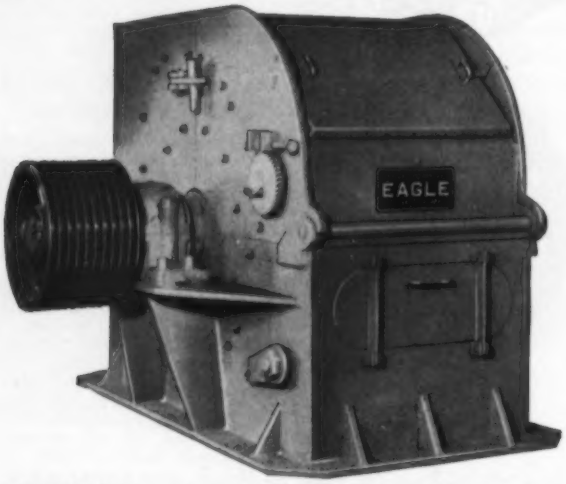
Robert E. Kochs has been appointed district manager of the Rochester territory, which includes New York (state) and a part of Pennsylvania.

The Loomis Machine Company, Tiffin, Ohio, has been acquired by a new group that will carry on the name and business of the firm. The new management of the 110-year company is headed by Stuart M. Weaver, former executive vice-president of the Ideal Electric Company, Mansfield, Ohio, as president.

Other officers are as follows: Clarence A. Riggs, vice-president of the predecessor company and of the present one; B. A. Nagelvoort, president of the Renown Corporation, a vice-president; W. C. Howe, treasurer of Loomis and of the Renown Corporation; and M. H. Pryor, secretary.

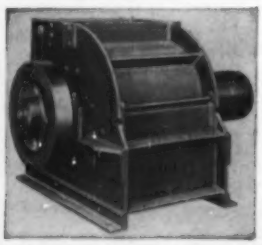
The new management plans to continue the present line of products and to bring out an improved line of drilling machines.

MAKING AG-LIME IS 'DOWN OUR ALLEY'



EAGLE'S MODEL 36-42 . . . It stands 6' high — weighs close to 19,000 pounds — can turn out the finest Ag-lime that can be produced, and in quantities you'll find profitable. Among the reasons operators choose this Eagle is that the size of aggregate (up to 3" stone) can be regulated even while the machine is operating.

SKF self-aligning bearings, high content manganese steel at all wear points—easy access when replacement is required—these and other features add up to real value in this modern hammermill. Send for folder #251-136 for complete specifications.



EAGLE'S MODEL 16x24 . . . A rugged, smaller brother in the Eagle line of hammermills. It's by the originators of one-piece, electrically welded steel crusher frames, has tough manganese wear parts —all reversible for double wear. Everything considered, you'll vote it a superior, more economical producer of Ag-lime and other aggregate. Send for Bulletin #851-136 for detailed specifications—now!

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More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. Are You Interested In Reducing Unloading Costs? The six pages of this folder contain lists of companies that are using the National Car Shaker in their operations. The companies are classified by industries for easy reference. The front and back covers illustrate the car shaker and point out some of features. National Conveyor and Supply Co.

2. Darakote, the chemical engineered, Anti-Stripping Additive. The four pages of the folder contain illustrations of tests and of use of a material for increasing the adhesion of asphalts, road tars and road oils. General information concerning use and results are given, and test data is included. J-W Materials Inc.

3. Telsmith Equipment for Mines, Quarries, Gravel Pits. General Catalog No. 226R. Illustrations, specifications, and information crowd the 36 pages of this bulletin which covers the complete line of equipment manufactured by the Smith Engineering Works. Included in the catalog are several types of crushers, feeders, screens, scrubbers, classifiers, elevators, conveyors, gates and complete portable plants. Sizes, capacities, weights and power requirements are included. Smith Engineering Works.

4. Power-Curve Bag Flattener, Bag Pallet Loader & Bag Elevator. Bulletin No. 60. A bag flattener and elevator that is composed of endless springs running over grooved rolls is the subject of this four-page folder. Illustrations show the ways in which the device can be used and the text points out advantages. Power-Curve Conveyor Co.

5. Lightweight Fine Aggregate. A three-page bulletin setting forth the advantages and method of using Granulite lightweight, fine aggregate as a means of extending costlier materials used in the production of lightweight masonry units. The material is described as a water-cooled slag weighing approximately 1500 lb. per cu. yd. as shipped. Included are detailed recommendations on mixing. The Granulite Co.

6. Barber-Greene Mixall Dryer-Mixer. Bulletin 804. A portable one-unit dryer-mixer is the subject of this eight-page bulletin. The bulletin outlines the reasoning behind the design and development of the machine. Typical operating capacities are presented along with a discussion of the capabilities of the machine. Operating features such as controls, loading height, frame, engine, discharge, dryer and pug mill are shown and discussed. Uses of the Mixall for hot and cold bituminous materials, concrete, drying, thawing and mixing are covered. Barber-Greene Company.

7. Here They Come. Form No. 2K652. This mailing piece covers the features of the skid-shovel designed for use with International Crawler tractors. Photos and drawings show the major features of the shovel while important points are featured in the brief text. Specifications for the line are given. Drott Manufacturing Corp.

8. Torquemaster Wire Rope Splicer No. 10. An information sheet covering two sizes of a tool for splicing wire rope. Specifications are given and brief information is included. Both sizes are illustrated. Quay Industries.

9. Nagle Pumps. A loose-leaf type catalog of 36 pages. The first few pages of this catalog are filled with information on styles of impellers, priming data, general information and other points of interest about the line. Suggested applications are listed by industries. Drawings and photos bring out the features of the various types of pumps while the text supplies complete specifications and covers the proper use of the models. Materials used in the construction of the pumps are given and special metals suggested for severe operating conditions. Nagle Pumps.

10. Guidebook for Better Surface Grinding Results. GA-3-52. This pocket-size booklet contains sixty pages of information on the use of abrasive discs in surface grinding. Included are such items as: abrasive fundamentals; selection information; types available; standard markings; spindle speeds; coolant selection; dressing; safety; grinding various materials; and care of discs. The book is illustrated with pictures and sketches. A glossy cover and pocket size make it handy for use. Gardner Machine Co.

11. Thomas Flexible Couplings. Engineering Catalog No. 51. This catalog is in a loose leaf binder and contains 78 pages. The information is grouped and indexed to provide for ready reference. Keyway data, standards for straight and tapered bores, ordering instructions, and construction details are shown for each application and type of coupling. In addition to the sections on standard types of couplings, a special section shows many special types of couplings for specific uses. Small motor couplings for ¼-in. shafts to main drives on locomotives and ships are covered. Thomas Flexible Coupling Co.

12. Alligator Long Length Conveyor Belt Lacing. Bulletin No. A-70. The single sheet of this compact bulletin describes and lists long length flexible lacing for conveyor belts. The bulletin contains application views, sizes, and prices, as well as other information such as special materials, cutters, and types of pins. Flexible Steel Lacing Co.

13. Fabricated Fittings by Naylor. Bulletin No. 525. The four pages of this bulletin contain illustrations of many kinds of standard and special fabricated fittings for piping. Specifications and prints are given on standard lightweight pipe fittings such as tees, elbows, wyes, laterals, crosses, bends, and reducers. Many special fabrications are shown. The text explains the advantages of fabricated fittings. Special types of metal are used in corrosive or other applications. Naylor Pipe Co.

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September, 1952

PIT AND QUARRY:

Please send more information on items circled.

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6.	7.	8.	9.	10.
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21.	22.	23.	24.	25.
26.	27.			

NAME

TITLE

COMPANY

ADDRESS

CITY STATE

More Information, Please

14. Denver Ore Feeders. Bulletin Number F2-B3. The four pages of this folder illustrate the types of feeders made by the company. Specifications for the adjustable stroke belt type and light and heavy duty apron feeders, are given. A plunger type feeder is illustrated but not described. Installation diagrams are included. Denver Equipment Co.

15. Clark Material Handling News. Serves You Right. This 18-page booklet presents the story of the engineering, production, and technical advice to customers that is offered by the company. Illustrations and text bring out the features of fork trucks, the technical staff that is available, training school facilities, production facilities, and service personnel and facilities. Clark Equipment Co. Industrial Truck Div.

16. Positive, fool-proof signals. Bin-Vue Materials Level Indicator. A blade type materials level indicator is the subject of this four-page folder. Illustrations show exterior and interior of the device, and the text explains the application of it. Prominent users, dimensions, and prices are some of the additional information included in the bulletin. Convair.

17. Farrell-Cheek Sheaves. Form 40-GR-652. The six pages of this folder present a line of wire rope sheaves in all sizes from four to 48 in. in diameter and handling wire rope from ¼ to 1⅜ in. in diameter. Illustrations show the styles available while the text describes the materials used—F"85" cast steel and cast iron. Illustrations show the various styles while tables give the specifications. Farrell-Cheek Steel Co.

18. Thermoid "Basic Five" Multi-Purpose Hose. Form No. 3680. This eight-page pamphlet describes the new line of five basic hose types that are coded by color. The pamphlet gives details of construction, sizes, lengths, pressures, recommended couplings and uses. A chart shows the types recommended for specific services. Thermoid Co.

19. The Clamshell, Vol. 14. No. 2. Half of this four-page magazine type publication is devoted to a comprehensive list of equipment for sale. The balance is used to give interesting information about equipment sold by the company and about its service setup. Equipment Corporation of America.

20. At Last—A Long Shank Hose Coupling of Machined Brass. Bulletin MLB-452. This six-page envelope-size folder illustrates and describes the long shank hose coupling for steam, spray and petroleum service. Sizes are listed and information is given about other couplings made by the company. Hose Accessories Co.

21. Schield Bantam Truck-Mounted Back Hoe. Form No. TT-101. This illustrated folder covers ⅛-cu. yd. truck-mounted back hoe. It includes detailed information on mechanical features, and a chart shows dimensions and operating data. The folder also includes specifications on the 2½ ton crane adaptor and two types of backfill blades. Attachments for converting the back hoe to crane, shovel, dragline, clamshell or related type of service are shown. Schield Bantam Co.

22. Erie Weighing AggreMeters and Cemeters. Bulletin AGG 1-52. The twelve pages of this bulletin are packed with illustrations and specifications of a line of aggregate and cement weighers and batchers. Individual units as well as combinations are shown and explained. Manual and remote control operation, dry batch and stationary mixer charging devices, water weighing tanks, and gates are some of the many items covered. Stationary and portable installations are shown by photos. This equipment is used to give control of aggregate weighing and loading as well as concrete batching. Erie Steel Construction Co.

23. You'll Earn More With . . . St. Paul Hoists and Bodies. Form STP 138. Facts on a new line of hydraulic hoists and bodies are given in detail in this 8-page catalog. Some of the points covered include: Lo-Mount cylinder heads; new sub-frame design; replaceable bushings at load points; dash mounted cable controls to valve and power takeoff; improved pump; and valves. Illustrations show the major features of the hoists and a table summarizes the specifications. A line of bodies and platforms for use with the hoists is shown and briefly described. St. Paul Hydraulic Hoist.

24. Colmonoy Hard-Facing Alloys. Hard-Facing Manual No. 77. Complete information on a wide range of subjects of interest to users of welding products are contained in this 12-page manual. Some of the subjects are: hard-facing; characteristics of Colmonoy alloys; Sprayweld process; castings; special alloys; typical applications; and finishing of Colmonoy alloys. Illustrations are used to show the applications and the processes wherever possible. Wall Colmonoy Corp.

25. American Crosby Clipper. Vol. 18, No. 3. This is devoted to news stories that show the use of the company's cranes and clips in various applications. It is a magazine type publication that is easy reading and informative at the time. Illustrations are large and well selected and add much to the value of the publication. American Hoist and Derrick Co.

26. Radial Air Compressors, Bulletin H-630-B1. Two-stage, air-cooled radial air compressors capable of producing up to 125 lb. pressure are the subject of this 12-page bulletin. The bulletin gives dimensions, weights, capacities, sizes, and general specifications of bare compressors; base-mounted multi-V-belt driven units; mounted flexible coupled units; and close-coupled models. Pictured and explained are such items as the articulated connecting rod, fan cooling of the cylinders, forced feed lubrication of bearings, and the Feather-Valve system of air control. Accessories such as air receivers and aftercoolers are also pictured and explained. Worthington Corp.

27. Air Compressor Lubrication. Form A-630R. Third Edition. The forty pages of this booklet cover the problems of lubrication of air compressors in a comprehensive manner. Drawings and cutaway views show the construction of many types of air compressors and the lubrication systems in use. The bulletin not only includes the specific problems of lubrication but also of air compressor operation in general. It covers such points as pressure, effects of altitude, intercoolers and aftercoolers, unloaders, moisture and dew point, cylinder clearance, conversion factors, and many more. It is a handy manual for operators of air compressors. Cities Service.

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FIRESTONE off-the-highway tires give you more for your money because they are engineered and built with the extra advantages that reduce downtime to a minimum.

New TENSION DRIED, SUPER GUM-DIPPED cord construction gives extra long body life, because you get more retread service and fewer downtime losses. There's no tire growth. Clearance and mating problems are simplified. There's no tread cracking. Cuts don't "grow." There's a 60% stronger bond between cords and body rubber to give you the strongest body ever built.

Firestone off-the-highway treads last longer because they're built double thick with *extra* tough, cut-resisting tread stock. Four *extra* tread plies absorb shocks and give maximum protection against impact breaks. The sidewalls are *extra* thick and snag-resistant.

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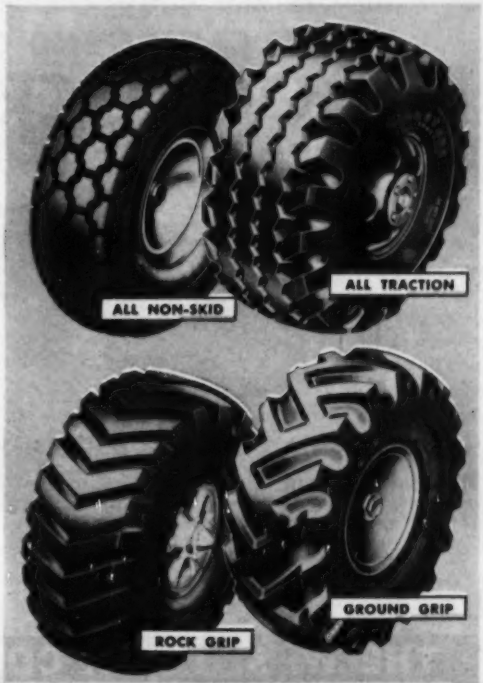
Let your Firestone Dealer show you how the many extra body and tread advantages of Firestone Tires give you more for your money.



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for
Modern High Speed Drilling

Always a leader in its field, Sprague and Henwood, Inc. has been working for a number of years on the development of new types of Diamond Bits, to supplement their well-known "TRUCAST" bits, which are still unsurpassed for many diamond drilling requirements.

NOW, after having been thoroughly proved by Sprague and Henwood's contract drilling crews, under every variety of drilling conditions, these new bits are available to other users. Two new types of "Powdered Metal" matrices; improved "Cast Metal" matrices; "Impregnated" coring bits; a new faster-cutting "Taper" bit for drilling blast holes in very hard rock —are all illustrated, described and tabulated in a new 16-page bulletin, No. 320. Write for it today if you can use it to advantage.

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To get the full benefit of our new diamond bits you need drilling machines with plenty of power and a wide range of both speed and feed. Model 40-C is our latest-model core-drilling machine and can be relied upon for best possible all-round results on holes up to 1000 feet in depth. Other modern machines provide for very deep core-drilling and for other core-drilling or blast-hole drilling underground. We also manufacture a complete line of improved accessory equipment. Illustrated bulletins containing detailed information mailed promptly.

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We do drilling by contract and are one of the oldest and largest contractors for any type of core drilling. Experienced crews are available at all times for service anywhere in the world. Estimates submitted promptly on request.

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See our four-page insert in the Mining Catalog

YOU CAN DEPEND ON
TY-ROCK SCREENS
BALANCED RUGGED

4' x 12', two surface
Type F-600 Ty-Rock Screen

THE W. S. TYLER COMPANY
CLEVELAND 14, OHIO
Manufacturers of Woven Wire Screens and Screening Machinery

H. G. Eberling

Herman G. Eberling has returned from his U. S. Army duties to be assistant manager of the Plains Sales Division of the Caterpillar Tractor Company. Mr. Eberling was a captain in the Caterpillar-sponsored 403rd Engineer Base Depot company, stationed in Germany.

Gordon Fowler, present assistant manager of the Plains Division, will leave Caterpillar to join the Burford-Toothaker Tractor Co., Caterpillar dealer at Montgomery, Ala.

Some 2,600 customers, friends, and guests visited the St. Louis plant, 5 Clinton Street, of Joseph T. Ryerson & Son, Inc., on June 13, when the company held an open house to celebrate the completion of a large addition to its steel service facilities.

R. C. Carruthers

Robert C. Carruthers was appointed sales manager, welding products, of American Manganese Steel Division, American Brake Shoe Company, Chicago Heights, Ill.

Mr. Carruthers is a graduate of Massachusetts Institute of Technology. He started with American Brake Shoe as metallurgical assistant, and was sales development engineer with the American Manganese Steel Division prior to his present appointment.

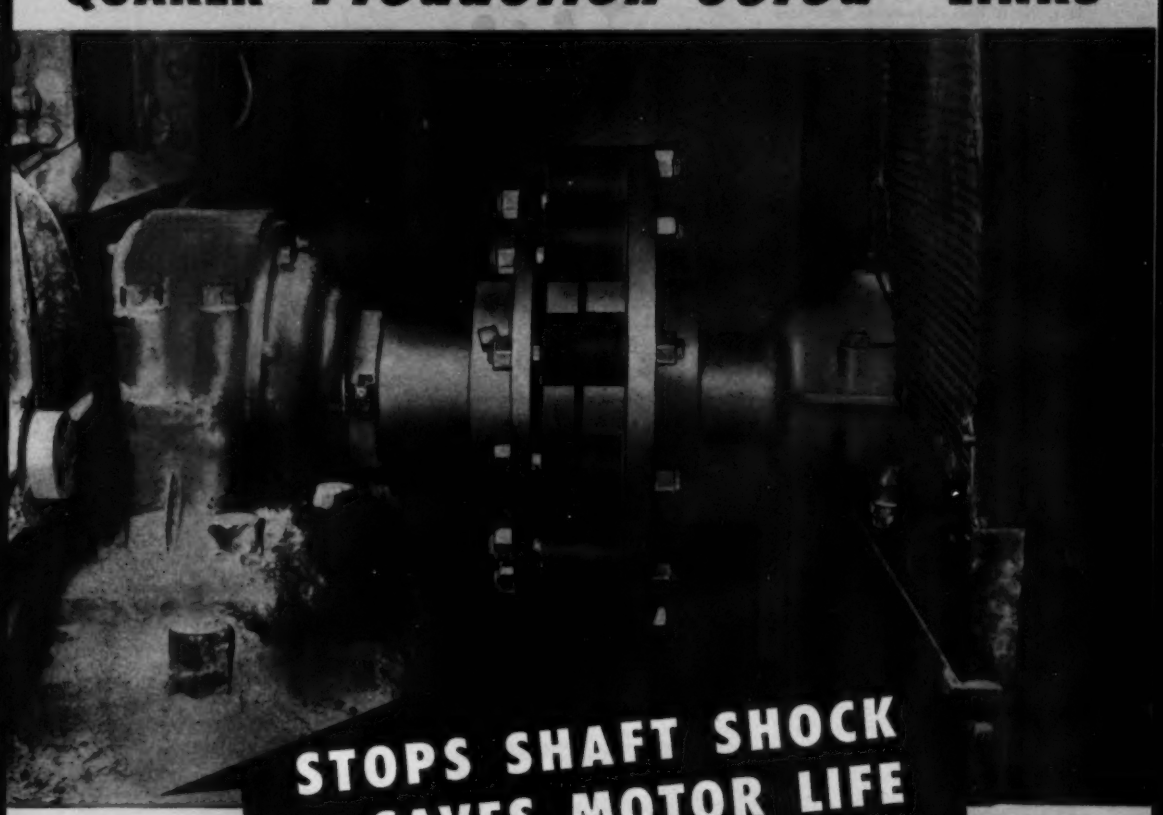
Edward Burgurs Jr., formerly of The Union Bag and Paper Company, has been appointed to the Sales Department of Kraft Bag Corporation. He will cover Illinois, Missouri, and part of Iowa, working out of St. Louis.

Link-Belt Company spokesmen have announced the appointment of Robert W. Suman as chief engineer for the new Colmar, Pa., plant. Norman Virkler will succeed Mr. Suman as chief engineer for the Philadelphia plant. The Colmar plant, north of Philadelphia, is scheduled to begin manufacturing operations late this year.

Organization of Davey International, Inc., to handle export sales of Davey air compressors and truck equipment in the Western Hemisphere, was announced by Paul H. Davey, president, Davey Compressor Co., Kent, Ohio.

The new company will be a wholly-owned subsidiary of the Davey Compressor Co. and will operate in Central and South America, Mexico, and the West Indies. Sales manager of Davey International, Inc., will be F. C. Kieser, formerly export manager for Davey.

QUAKER *Production-eered** LINKS



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ABSORB HAMMER SHOCK ON PULVERIZER SHAFT . . . PREVENT MOTOR DAMAGE

Hour after hour . . . day after day . . . heavy hammermills in the "Penn-Dixie Cement Corporation" turn out 275 tons of material per hour. The hammer shock had been a drum beat of death for pulverizer motors . . . frames broke and other damage occurred. Then QUAKER Shock Dampener Links were mounted on the flexible couplings. Shaft shock was reduced to a mere vibration. Motor strain and shock has been eliminated. Result . . . longer life for all equipment . . . less time out for maintenance . . . more production.

Another example of how QUAKER "Production-eered" Products and QUAKER technical teamwork assure improved production at lower costs. Whether your needs are conveyor or power transmission belting, air hose or water hose, packings or specialty products you can be sure of production if you specify QUAKER.

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DIVISION OF H. K. PORTER COMPANY, INC.

PHILADELPHIA 24, PA. • BRANCHES IN PRINCIPAL CITIES

The sales territory of John M. Wallace, Kraft Bag Corporation, has been extended to include New Jersey, Pennsylvania, Delaware, and Maryland. He will continue to operate out of the New York headquarters at 630 Fifth Avenue.

Frank S. Salchenberger, 6725 North Rockwell, Chicago, Ill., engineer and for many years Chicago district manager of the Morris Machine Works, died unexpectedly on June 20 at Evanston, Ill.

W. H. Pfarrer, vice-president, Sales and Engineering, will take over all sales and engineering in the territory formerly managed by Mr. Salchenberger. He will be located at the firm's Chicago office, 211 W. Wacker Drive.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Seldom have readers of PIT AND QUARRY asked so many important legal questions affecting the nonmetallic industry as were presented the writer during his recent northern travels. Knowledge of important court decisions cited in this article will very consistently enable readers to avoid expensive legal pitfalls; also, the hereinafter citations can be used advantageously by readers to win unavoidable law suits.

Lowest Bidder Sued City

A reader asked this question: "If a state, county, or city awards a contract to a high bidder on the plea that the lowest bidder is not capable of fulfilling the contract, what must the lowest bidder prove in order that a court will award the contract to him?"

See the late and leading case of *Fetters v. Council of Wilmington*, 73 Atl. (2d) 644. Here the testimony showed the following facts: A city advertised for bids for installation of a public works. A copy of the plans and specifications was supplied to each bidder. It was clearly stated, "No proposal will be received from any bidder unless he is known to be skilled in work of a nature similar to that covered by this contract". The city officials also reserved the right "to reject any or all bids". A city ordinance provides that installation contracts shall be let out by the board of water commissioners to the "lowest and best bidder".

Based on the plans and specifications one Fetters furnished the city a sealed bid of $393,570 for the proposed work, which bid was in full compliance with the plans and specifications. The bid was accompanied by a certified check for $20,000, and a performance bond in the full amount of the bid. Soon afterward Fetters learned that the contract had been awarded to another higher bidder.

Fetters sued the city and proved these facts: He now and previously for a period of approximately 30 years has been continuously engaged in the business of construction and contracting, and has bid upon and completed numerous projects in other states. Other testimony showed that Fetters has enjoyed an excellent reputation in the contracting field and has never defaulted upon a project awarded to him. The city officials were well aware of the skill and competency of Fetters for the construction and completion of the project here involved. The higher court held:

"A reasonable man of experience in construction of this kind could not but have admitted, after proper investigation, that Fetters was fully competent to discharge the responsibility entailed. With the knowledge on the part of the

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Typical Sly Dust Filter in a cement plant

In April 1948, a leading cement manufacturer installed an automatic-continuous Sly Dust Filter to ventilate four cement finish mills.

This filter is responsible for saving approximately $100, or 50 barrels of cement per 24-hour day. It has been in operation since installation without repairs.

This is a typical example of how Sly Dust Filters repay their cost.

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defendants (city) as to skill and competency of plaintiff (Fetters) to perform the work required, the action of the defendants (city) in awarding the contract to a higher bidder was taken in disregard of the defendants' duties to the taxpayers of Wilmington, was a waste of public funds, and was an act of favoritism in disregard of their duty and to the prejudice of the taxpayers of Wilmington. Plaintiff (Fetters) was fully competent to do the work involved at a lesser cost than would result from awarding it to a higher bidder and defendants (city officials) were fully aware of this fact."

For comparison, see *Colorado Paving Company v. Murphy*, 8 Cir., 78 F. 28, 37 L. R. A. 630, affirmed by the Supreme Court of the United States in 166 U. S. 719. The Supreme Court clearly held in this case that city officials may lawfully refuse to let a contract to the "lowest bidder" if the testimony shows any of these facts: the higher bidder is likely to perform more efficient work; or the lowest bidder has a bad reputation; or he apparently has inefficient equipment; or lacks experience successfully to complete his contract; or has in the past defaulted similar contracts. The court said, "The statute and ordinance requiring the work to be awarded to the 'lowest and best bidder' was adopted for the benefit of taxpayers and others adversely affected by the waste of public funds. It was not enacted for the benefit of disappointed bidders."

What Are Capital Gains?

A reader asked this question: "Under what circumtsances can a taxpayer pay only 50 percent federal income taxes on profits from real property which he sells or trades? I have from time to time sold to building contractors small tracts from my property originally acquired for sand-and-gravel deposits. Can I pay only 50 percent taxes on profits derived from my sales?"

You pay federal income tax for only 50 percent of your net profits on "capital gains" on real estate transactions, whereas you must pay full taxes on profits earned on "ordinary gains".

The terms "long-term gain", "capital gain", and "capital assets" all have the same legal meaning, namely that if an owner has held his real property more than six months and did not realize profits or losses from its sale "in the ordinary course of his business", the earned profits or losses may be lawfully discounted at 50 percent.

Before explaining the law on this subject in simple language and terms readily understandable by the average layman, I shall briefly review the Internal Revenue Code pertaining to capital assets and having particular interest to readers.

Section 117 of the Internal Revenue Code states that "capital assets" do not include (1) stock in trade of the taxpayer or other property which is included in the inventory of the taxpayer; (2) property held by the taxpayer primarily for sale to customers in the ordinary course of his trade or business, or (3) property used in the trade or business of the taxpayer.

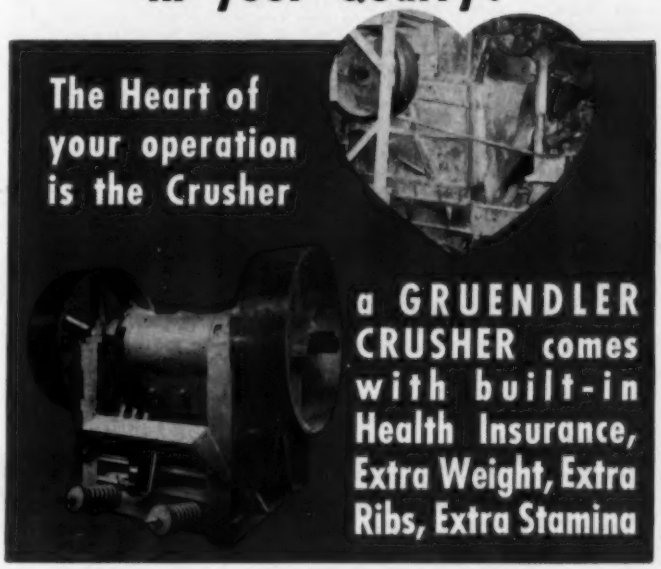
According to a late higher court decision, profits earned by a taxpayer from sale of lots or small tracts of land are "capital gain" if the testimony shows these facts: (1) the land was not platted; and (2) the lots or tracts were not advertised for sale. This is so although the taxpayer is in the real estate business to the extent that he owns and rents business properties.

For illustration, in *South Texas Company v. Commissioner of Internal Revenue*, 16 T. C. No. 123, the testimony showed facts as follows: A company owned a substantial amount of unimproved acreage on the outskirts of the city. During the years 1938 through 1950 it made a few sales each year by cutting up the land into smaller tracts.

Further testimony showed that the company never published a price list of its real estate, and never listed any of its real estate with real estate agents. It did not advertise its property for sale. If it received an inquiry from some one who wanted to buy a piece of its property, one of its officers would suggest a price, and if the purchaser accepted the price, the sale would be made. The company never subdivided or platted any of its real estate. The company's income from sale of real estate during the years 1938 to 1946 was $37,879.23.

In view of this testimony the court held that the company was entitled to pay taxes on the basis of a capital gain

Do you have Heart Trouble in your Quarry?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"My company, in 1932 installed a Sauerman Slackline Cableway purchased from an English agent of Sauerman Bros., Inc. This plant, normally maintained, is as good today as when we bought it. Between 1932 and the end of 1951 it excavated and yielded to the hopper 2,322,783 tons and we expect it to continue producing at this rate for possibly ten more years before it is retired. I give the equipment a high rating for performance. Up to 1952, the capital cost divided by 19 years' output amounts to less than ¼ cent for each ton handled. Maintenance expense of the machine over this period also has been moderate."

Mr. C. Maw, Director
Stanley Ferry
Gravel Co., Ltd.

SAUERMAN
Slackline Cableway

The excavation and movement of gravel to the screens at the plant of Stanley Ferry Gravel Co., Ltd., Leeds, England, has been a "one man, one machine" job since 1932, handled entirely by the Sauerman Slackline Cableway shown in the picture above.

During this period the Sauerman machine has moved over two million tons of gravel at a capital cost of less than one-third cent a ton, and with a nominal expense for repairs continues to give as good service as when new.

The deposit is tightly packed and contains many submerged swamp trees. Water table is 9 ft. below ground level. Gravel extends to a depth of 30 ft. The material is very abrasive. Altogether, it is a tough test of a machine's power, range and durability.

The Sauerman machine operates on a 750-ft. span from a steel mast 90 ft. high, and soon will have taken out all the aggregate within its reach. The mast will then be moved to a new location approximately 900 ft. from where it now stands. This will be the third move. The first pit excavated by the cableway is behind the mast in the background.

The 150-hp. machine digs and conveys 100 tons per hour, delivering to a cantilevered hopper on the mast. A ropeway conveys the material from the hopper to the screening plant located on a highway 1,000 ft. away. The cableway could produce considerably more than 100 t.p.h., but is limited by the capacity of the ropeway.

This 19-year old installation is just one of many Sauerman installations scattered through every state in the United States and in many foreign countries that have proved wonderful long term investments for their owners, while maintaining large daily output at small expense.

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or 50 percent of its profits. The court said:

"The issue here must be decided by considering whether the company intended to hold the property in question for sale to its customers in the ordinary course of its trade or business. We think that the facts show that it did not so intend."

Signs Avoid Liability

Another reader asked this question: "How can the owner of a gravel pit avoid or lessen his chances for being liable for injuries caused by his motor trucks when traveling on narrow roads to and from the pit?"

The answer is: According to a leading higher court, the owner of a private roadway may avoid liability for injuries to automobile owners on the roadway if large signs are posted warning motorists of danger.

For example, in *Robins v. Great American Indemnity Company*, 37 So. (2d) 337, it was shown that the owner of a private roadway leading to a gravel pit posted signs warning travelers to maintain a careful lookout for loaded gravel trucks. Despite this warning an accident occurred when a passenger automobile collided with a loaded gravel truck where the road narrows on either side of a one-way bridge.

The higher court refused to hold the owner of the gravel pit liable in damages, and said:

"The driver of plaintiff's passenger car was negligent in that he disregarded the warning to maintain a careful lookout. It is established that there was no reason why he could not have observed the approach of the heavily loaded gravel hauling unit at a sufficient distance to have permitted bringing his automobile to a stop before entering upon the narrow portion of the road."

Silicosis Liability

A reader asked this question: "I had an employee who worked for me only three months, and now he is suing me for compensation for silicosis. As he worked for many other employers, will the court hold me solely liable?"

According to a recent higher court, an employee who suffers from the disease silicosis must prove to the satisfaction of the court in whose employment he contracted the disease. Otherwise he cannot recover any compensation.

See *Perez v. Columbia Granite Company*, 62 Atl. (2d) 658. Here it was shown that an employee worked as a stone cutter since 1914. He worked as a stonecutter for the Coduri Granite Company on three different occasions. Later he was employed as a stonecutter by the Columbia Granite Company and continued with this company when he became ill. He was found to be disabled from silicosis, which disablement was *total* according to his own doctor.

The question presented the court was whether the Columbia Granite Company or Coduri Granite Company was liable for payment of compensation to the employee.

The higher court refused to decide which company is liable, holding that

it is the employee's legal duty to prove that his illness resulted from exposure to the hazard of silicosis while working for one of these companies. This court said:

"Conceivably an employee might work for an employer only one day when the accumulating effects of previous exposure to silica dust during many years of employment by different employers would finally have brought about his actual disablement."

Nuisance Is Unlawful

A reader asked this question: "If a company has been for many years operating a plant in a city, can its operations be stopped by a new city ordinance which prohibits the plant?"

According to a late higher court decision, the answer is no.

It is well established law that an unreasonable ordinance prohibiting operation of certain businessess is void. Also, any new law of this nature which is unduly oppressive is void.

For illustration, in *People v. Hawley*, 279 Pac. 136, it was disclosed that a company had for many years conducted a stone quarry and a rock crusher within the city limits. The citizens instituted legal proceedings and requested the court to issue an injunction against its further operation in view of a new city ordinance which prohibited this class of businessess in the city. The court promptly held in favor of the owner of the quarry, stating the following important law:

"Ordinances must be reasonable, and must be for the purpose of protecting the public health, comfort, safety, or welfare . . . Any ordinance which would enjoin and prohibit the company from thus using its property is therefore void, as an unreasonable restraint upon the use by it of its property and an unwarranted interference with the right of said company to carry on a lawful business and to use and enjoy its own property."

Notwithstanding this law, a court always will issue an injunction against conduction and operation of a nuisance. See *Bentley V. Empire Portland Cement Company*, 96 N. Y. S. 831.

Also see *Gundy v. Village of Merrill*, 230 N. W. 163. Here it was disclosed that owners of dwellings filed suit to enjoin a corporation from conducting its business in such a manner that undesirable and unhealthful dust, vapors, and odors settled on surrounding private property, so that the residents were compelled to keep their doors and windows closed.

It was contended by the corporation's counsel that these undesirable conditions had prevailed for 15 years previously and therefore the property owners had lost their right to complain. The higher court ordered the corporation to eliminate the nuisance.

Reasonable Ordinance Is Valid

Another reader asked this question: "Is a city ordinance valid which restricts quarry, sand, and gravel operations, etc., to a certain locality or area?"

According to a late higher court decision, the answer is yes. This is so because reasonable city ordinances are valid

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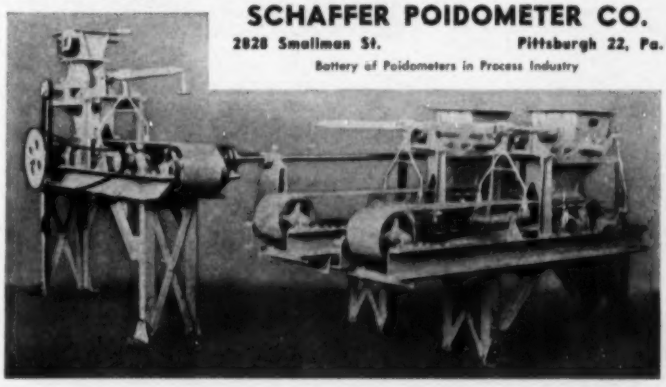
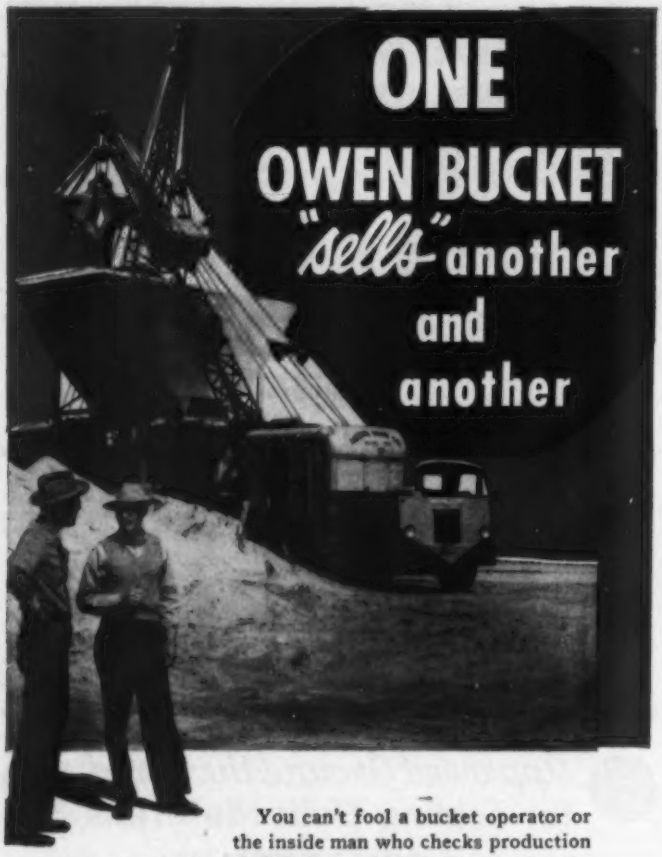


Battery of Poidometers in Process Industry



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which restrict certain sections or areas exclusively for residences.

See *Los Angeles Rock and Gravel Company v. City,* 272 Pac. 1076. Here an ordinance was passed that specified certain sections and areas in which was prohibited the operation of steam shovels, and other like machines for the purpose of excavating rock, sand, and gravel.

A company filed suit contending that provisions of the ordinance violated the United States Constitution. However, the court held the ordinance valid, saying:

"The use of property in a manner detrimental to the public health or safety may be abated . . . It is not apparent that forbidding the operation of steam shovels or the excavating of deep holes in a residence district is an arbitrary or unreasonable regulation".

Governmental Vs. Ministerial

A reader asked this question: "I have heard that a city is not liable for errors or negligence of its officials who do governmental services or functions. What is meant by governmental functions?"

A municipal corporation possesses two kinds of powers; one governmental or public, which is exercised and clothed with sovereignty; the other is a private power, which is exercised like the legal right of an ordinary individual. The former powers are for public purposes; the latter for private purposes. In the exercise of the governmental duties, a municipality is a form of a government and in the exercise of the ministerial duties it acts as ordinary business firms.

A municipality is not liable in damages for negligence of its employees who act in the exercise of its governmental powers, but it is liable for damages caused by neglect of its officials who perform ministerial functions.

For instance, a municipality is liable for negligence of its employees when operating a power plant, a gas, electric or water system, or a sewerage disposal plant. Also, it is liable for negligence of its employees where damage results from overflowing of a sewer into a basement in which nonmetallic products are stored, or where negligence in the maintenance of its streets results in injury to persons or property traveling over them. For comparison see *Barcus v. Coffeyville,* 282 Pac. 698. This higher court said:

"The general rule, well settled in this state and elsewhere, is that in the performance of governmental functions neither the state nor any of its political subdivisions is liable in damages for the negligence of its officers."

A simple rule by which to determine whether a municipal project is a governmental or ministerial function is: If it is for profit it is ministerial; otherwise it is governmental.

Although sales revenues recorded by the Kelley Island Lime and Transport Company of Cleveland, Ohio, reached a record high of $12,578,282 in 1951, net profits dropped to $3.56 from $3.72 in 1950. Officials expect that sales will reach an even higher level in 1952; but it is admitted that cutbacks from 1951 in institutional and commercial construction may affect both sales and earnings.

traffic news

CENTRAL TERRITORY RAILROADS FREIGHT TRAFFIC COMMITTEE

Docket 88992 (1)— Proposed to establish on crushed stone, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Bloomington, Ind., to Effingham, Ill., 138 cents net ton.

Docket 88996 (1)—Proposed to establish on stone, crushed, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Georgia, Ind., to Loogootee, Ind., 51 cents per net ton.

Docket 89020 (2)—Proposed to establish on limestone, natural, ground or pulverized (unburned), screenings, crushed stone, not ground or pulverized (unburned), or stone dust, carload minimum weight 30 tons. Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other material either physically or otherwise added from Marble Cliff, Ohio, to Scarlet, W. Va.; open cars, 286 cents net ton; closed cars, 336 cents net ton.

Docket 89023 (2)—Proposed to establish on agricultural limestone, carloads, in bulk, in open-top cars, not protected by tarpaulin or other protective coverings, minimum weight 90 percent of marked weight capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Joliet, Ill., to Buchanan and Niles, Mich., 113 cents net ton; to Dowagiac, Decatur, and Lawton, Mich., 125 cents net ton; and to Kalamazoo, 138 cents net ton.

Docket 89036 (1)—Proposed to establish on stone, crushed, in bulk, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from Georgia, Ind., to Montgomery, Ind., 58 cents net ton.

Docket 89041 (1)—Proposed to establish on agricultural limestone, unburned, in open-top cars, not protected by tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply to Freedburg, Ohio, from Woodville and Gibsonburg, Ohio, 213 cents net ton.

Docket 89048 (1)—Proposed to establish on crushed stone, in bulk, in open-top cars, minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply from McVittys, Ohio, to Center Line, Mich., 201 cents net ton.

Docket 89050 (2)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons, from Marble Cliff, Ohio, to Evanston, Ky.; open cars, 286 cents; closed cars, 336 cents. To Vail, Ky.; open cars, 298 cents; closed cars, 348 cents. Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other material either physically or otherwise added.

Docket 89054 (1)—Proposed to establish on agricultural limestone, unburned, in closed equipment, carload minimum weight 50 tons from Piqua, Ohio, to Butternut, Mich., and Greenville, Mich., 317 cents net ton.

GENERAL FREIGHT TRAFFIC COMMITTEE—Eastern Railroads

Bulletin G-6186 (Carrier)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 60,000 lb., from Piqua, Ohio, to Canastota, N. Y., $4.31 (open cars) and $4.81 (closed cars); to Dresden (Washington County) N. Y., $5.16 (open cars) and $5.65 (closed cars), subject to ExParte 175 increase.

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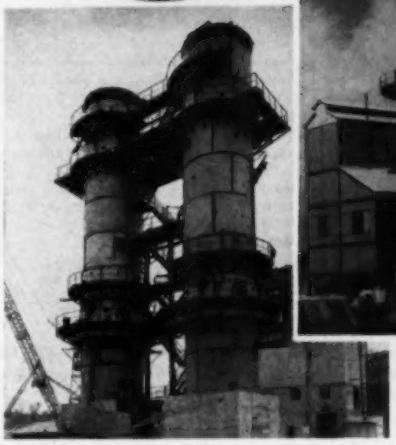

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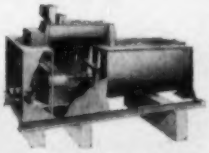

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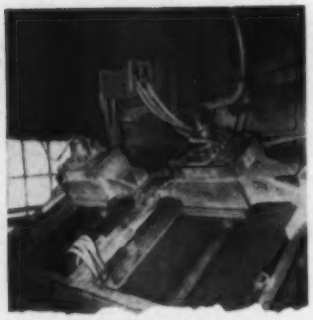

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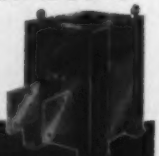

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Bulletin G-6215 (Shipper)—Proposed to establish on dolomite, roasted (refractory dolomite), in granular form, treated or untreated, clinkered or burned to a dead state, carload minimum weight 90 percent of marked capacity of car or of container loading limit when loaded in containers (see note), except that when loaded to full cubical or visible capacity, actual weight will apply from Narlo and Maple Grove, Ohio, to Hamilton and Welland, Ont., $5.65 per net ton, subject to ExParte 175 increase. Note: Container loading limit is 167,000 lb.

Bulletin G-6226—Proposed to issue a rate of $1.22 per net ton to meet motor competition on gypsum rock, crude, in open-top cars, not protected by tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car from Oakfield and Clarence Center, N. Y., to Buffalo (Westinghouse) and Buffalo (Black Rock) N. Y., subject to X 175 increase.

Bulletin G-6277 (Shipper)—Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons, as described in item 4065 Central Territory Railroads tariff 400-R, I.C.C. 4430, from Marlo, Mosher, and Ste. Genevieve, Mo., to Vincennes, Ind., $2.62 per net ton (open cars) and $3.11 (closed cars), subject to ExParte 175 increase.

Docket G-6305 (Carrier) — Proposed to establish on limestone, natural, ground or pulverized, unburned, carload minimum weight 30 tons from Maple Grove and Narlo, Ohio, to Owego, N. Y., $3.03 per net ton, subject to all increases. Rates named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

Bulletin G-6318 (Shipper) — Limestone, natural, ground or pulverized, unburned, in closed cars, minimum weight 30 tons from Carey, Ohio, and other northwestern Ohio Group 1 origins to New Market, N. J., $5.29 per net ton, subject to ExParte 175 increase. Rate named will also apply on limestone, ground or pulverized, when containing not in excess of 3 percent of other minerals either physically or otherwise added.

ILLINOIS FREIGHT ASSOCIATION

Docket IRC 511-1163—Proposed to establish on crushed stone, carload, from Lehigh, Ill., to Bloomington, Ill. Present, 139 cents per ton of 2,000 lb., subject to X 175 increase. Proposed, 123 cents for ton of 2000 lb., subject to X 175 increase.

Docket IRC 511-1162—Proposed to establish on agricultural limestone, crushed or ground, in open-top cars, from Pearl, Ill., to points shown below: proposed minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply:

	Rates in Cents per Ton, 2000 lb.	
	(1) (2) Present	(1) (2) Proposed (E)
To Illinois points		
Petersburg, Hill Top (Five Points)	92	77
Tallula, Ashland, Prentice, Sinclair	92	77
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The Frog, Switch & Mfg. Co. CARLISLE, PA.
ESTABLISHED 1881

son, Murrayville, Manchester	92	77
Roodhouse, Drake, Hillview, Grand Pass	92	77

(1) Subject to X-175-B increase. (2) Applicable on Illinois intrastate traffic. (E) To expire December 31, 1952.

Docket ORMV 331-I—Proposed to establish a rate of 505 cents per net ton, subject to ExParte 175 increase, on roasted dolomite, carload, from Chicago, Ill., to Owensboro, Ky.

Docket IRC 511-1172 (MRP 6273)—Gravel or crushed stone in open-top equipment.

Rates in Cents Per 2000 lb.

To Jacksonville, Ill.	From Pekin, Ill.		Joliet, Ill.	
	Present	Proposed	Present	Proposed
	109	92	139	123

Above rates are subject to X 175-B and expire on December 31, 1952. Minimum weight, 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, but not less than 30 tons.

NORTH PACIFIC COAST FREIGHT BUREAU

Docket X NC 2700 (S)—Rock, crushed, carload, from Basin, Mont., to Portland, Oreg., $6.50 per ton of 2000 lb., minimum weight marked capacity of car, except that when car is loaded to full visible capacity, actual weight will apply, but not less than 50 tons. Not subject to X 175.

PACIFIC SOUTHCOAST FREIGHT BUREAU

Docket 2837 (S)—Request to establish on gypsum, ground, in bags, carload, Plaster City to Algosa and Fresno, Calif., rates 18 cents in open cars and 19 cents in closed cars, minimum 40 tons.

Docket 2870 (S)—Request rate on rock, silica, crude, carload, of 22 cents per hundredweight, minimum 40 tons, Cantil to El Cerrito, Calif.

WEEKLY DOCKET AND STATUS REPORT OF PRIOR SOUTHERN FREIGHT ASSN. PROPOSALS

Docket A 11020 (a)—Stone, limestone, granite or marble, broken or crushed, open cars, as described in item 401-E Southern Freight Tariff Bureau 388-G from Dan, Ga., to Savannah, Ga., 140 cents net ton, not subject to X 162-6-8.

SOUTHWESTERN FREIGHT BUREAU

Docket 60992 (S)—Proposed to establish on lime, Mosher-Ste. Genevieve, Mo., to Calvert, Ky., carload $4.85 per net ton, minimum 15 tons (not subject to X 162-166-168 increase), and $3.90 per net ton, minimum 25 tons (not subject to X 162-166-168 increase).

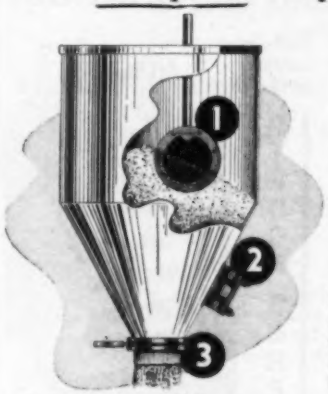
Docket 61267 (X)—Limestone, natural, ground or pulverized, unburned, 782 cents per net ton in open cars and 832 cents per net on closed cars, not subject to X 162, 166 or 168, minimum weight 30 tons, from Horine, Mo., to Corona and Manhasset, L. I., N. Y.

FREIGHT TRAFFIC COMMITTEE TRUNK LINE TERRITORY RAILROADS

Docket TL M-2176 (Shipper)—Proposed to establish on crushed stone (will not include agricultural limestone or ground limestone, unburned, fluxing stone or

for Complete Hopper Efficiency—

SYNTRON



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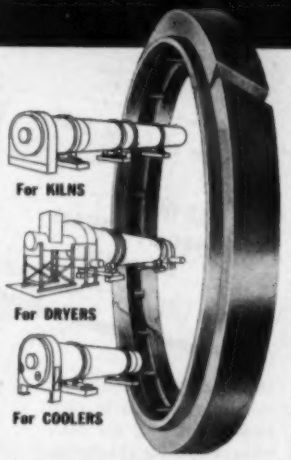

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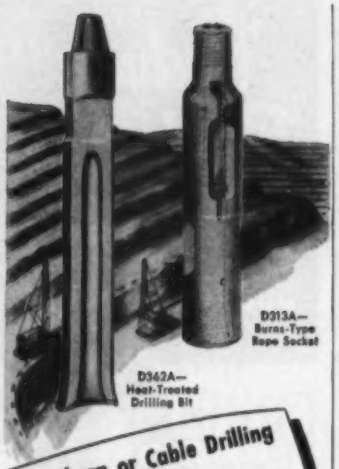
WALLACE YOUNG, South American Representative

Manufacturers of STROH ALLOY CAST TOOTH GEARS CAST OR CUT TOOTH CARBON STEEL GEARS



For Churn or Cable Drilling
of
• BLAST HOLES
• PROSPECT HOLES
• SAMPLING
SAFE • EFFICIENT • ECONOMICAL

Spang Churn or Cable Tools are top performers in their fields for drilling test holes when prospecting or sampling . . . drilling blast holes for fragmentation of minerals or overburden . . . drilling and reaming escape, dewatering and ventilating holes . . . and drilling wells for other purposes. Fifty years' experience serving oil, water-well, mining and quarrying operations assures their value.

D606—Reamer-Type
Pilot Bit

LARGE BITS
for pilot hole drilling and stage enlargement reaming of dewatering, ventilation and escape holes.

D370F—Prefabricated
Star Bit

SPANG CABLE TOOLS
SPANG & CO., BUTLER, PA.
for
• SHOT BLAST HOLES • WELL DRILLING
• PROSPECT DRILLING • SAMPLING

firestone or stone coated with oil, tar, or asphaltum) in bulk in open cars, carload minimum weight 90 percent of marked capacity of car, from Trap Rock, Pa., to Norfolk, Va., $3.04 per net ton, subject to ExParte 175 increase.

Docket TL M-2192 (Shipper)—Proposed to establish on limestone, crude, fluxing, foundry and furnace, when loaded in bulk in open-top equipment, minimum weight 90 percent of marked capacity of car from Valley Store, Pa., to Chester-Marcus Hook, Fairless, and Bethlehem, Pa., $1.36 per gross ton, subject to ExParte 175 increase.

Docket TL M-2193 (Shipper)—Proposed to establish on limestone, crude, fluxing, foundry and furnace, when loaded in bulk in open-top equipment, minimum weight 90 percent of marked capacity of car, from Valley Store, Pa., to Swedeland, Pa., 70 cents per net ton, subject to ExParte 175 increase. This rate is applicable only on traffic delivered to Upper Merion and Plymouth Railroad.

Docket TL M-2196 (Carrier)—Proposed to establish on stone, natural (other than bituminous asphalt rock), crushed, not otherwise indexed by name, in open-top cars not protected by tarpaulin or other protective covering, carload minimum weight 90 percent of marked capacity of car from White Haven, Pa., to Tobyhanna, Pa., $1.34 per net ton, subject to ExParte 175 increase. To be issued to meet motor competition.

Docket TL M-2199—(Shipper)—Proposed to establish rate of $3.40 per net ton on crushed stone (will not include agricultural limestone or ground limestone unburned, fluxing stone or firestone or stone coated with oil, tar, or asphaltum), in bulk in open-top cars, carload minimum weight 90 percent of marked capacity of car from Trap Rock, Pa., to Williamsburg, Va., $3.40 per net ton, subject to ExParte 175 increase.

Docket TL M-2214 (Carrier)—Proposed to establish on stone, natural (other than bituminous asphalt rock), crushed, in open-top cars not protected by tarpaulin or other protective coverings, carload minimum weight as per Item 5 of New York Central Railroad Tariff I.C.C., 342 from Oaks Corners, N. Y., to N. Y. C. stations Tompkins, Pa., to Phillips, Pa., $1.34 per net ton, subject to ExParte 175 increase.

WESTERN TRUNK LINE COMMITTEE

Docket X-D-41-1619 (S) — Proposed to establish on limestone (ground) in barrels or sacks, minimum weight 30 tons from Edson, Kans., to Chicago, Ill., and Milwaukee, Wis., $6.87 per ton of 2,000 lb., subject to tariff ExParte 175-B.

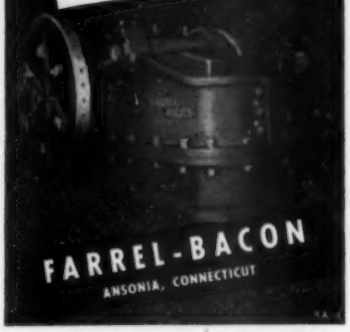
Docket X-E-41-1621 (S)—Stone and other articles listed in item 4100-B supplement 59 to Western Trunk Line tariff 1-a from origins named in item 4100-B supplement 59 to Western Trunk Line freight tariff 1-A to Group D (Sioux Falls, S. D.). Proposed

Column 1-A	21 cents
Column 1-B	19 cents
Column 2-A	20 cents
Column 2-B	18 cents

These rates subject to increases under ExParte 168 and 175 respectively.

FARREL-BACON
JAW CRUSHERS
SIZES 60"x48" to 10"x7"

Optional design features include: (1) Meehanite frame, sectionalized when necessary; (2) removable water-cooled bearings; (3) improved design of swing-jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive. *Write for further details or engineering assistance.*

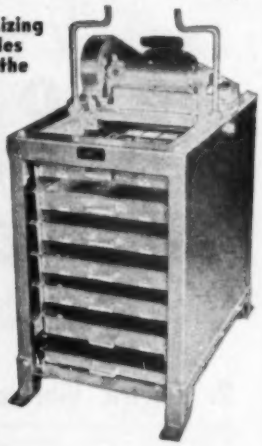


FARREL-BACON
ANSONIA, CONNECTICUT

NOW it's Easy

test-sizing samples with the

GILSON SCREEN



KNOW your product will rate "tops" in uniformity! A GILSON separation test provides vital information fast and accurately. Sizes sand, gravel, etc., in a range of 4" to 200-mesh. Write for details.

GILSON SCREEN CO.
BOX 186 MERCER, PA.

ONE STAGE BULLDOG HAMMERMILL

NON-CLOG MOVING BREAKER PLATE

CAR LOADS

(PARTIAL SHIPMENT FOR ONE CUSTOMER)

BULLDOG HAMMERMILLS

(PRIMARY - SECONDARY - FINE REDUCTION)

BULLDOG HAMMERMILLS for DRY OR WET STICKY MATERIALS FOR THOSE TOUGH HEAVY-DUTY CRUSHING JOBS

1 to 1000 ton capacity

We will gladly survey your reduction requirements and recommend the proper equipment without cost or obligation. Just write or call.

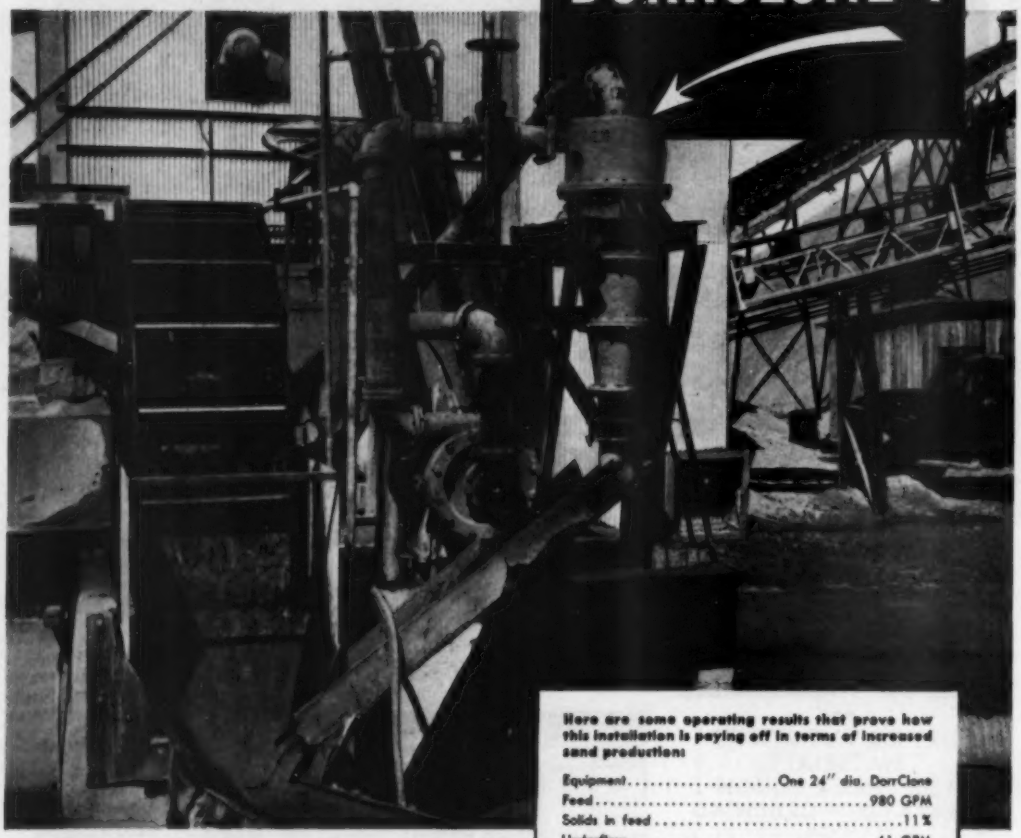
ASK FOR LIST OF INSTALLATIONS

HAMMERMILLS, INC. *division of* **PETTIBONE MULLIKEN CORP.**

4766 W. Division St. Chicago 51, Illinois Phone SPaulding 2-9300

20 Tons Per Hour of Fine Sand Recovered

In One 24" Dia. DORRCLONE*!



Here are some operating results that prove how this installation is paying off in terms of increased sand production:

Equipment	One 24" dia. DorrClone
Feed	980 GPM
Solids in feed	11%
Underflow	61 GPM
Solids in underflow	73%
Underflow tonnage	20 TPH (dry basis)
Overflow	919 GPM
Solids in overflow	4% (approx.)
Recovery	71%

At Pequannock Sand & Gravel Company, Pequannock, N. J., this 24" dia. DorrClone is recovering 71% of the solids overflowing the sand wheel at the left . . . an average 20 TPH of sand that would otherwise be lost. Underflow is carried by belt conveyor to stockpile for use as mason sand or for blending.

Lost sand is lost profit. If you have a washing operation and are losing valuable sand, drop a line to The Dorr Company, Stamford, Conn. No obligation of course.

*Trademark of The Dorr Company

Better tools TODAY to meet tomorrow's demand

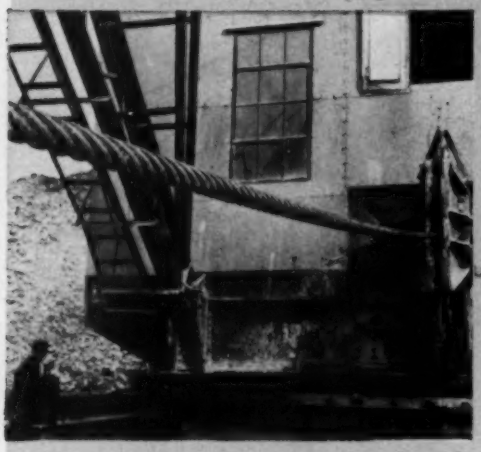
DORR

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

THE DORR COMPANY • ENGINEERS • STAMFORD, CONN.

Offices, Associated Companies or Representatives in principal cities of the world.

The Proper Rope *plus* Proper Maintenance



Equals Longer Rope Life Lower Rope Costs

This new Tiger Brand Drag Line Rope was designed especially to resist the extremely severe operating conditions encountered in this class of service. On one job where ropes lasted an average of 600 hours, this Tiger Brand Drag Line Rope was still going strong after 1100 hours—believe it or not!

● Many prominent users of wire rope have found they can reduce wire rope costs as much as 50% by using a wire rope designed for the job. They get better rope service at lower rope cost by following this simple, job-tested system, with the help of the Tiger Brand Wire Rope Specialist.

Let this qualified expert make *sure* that you select, for each job, a wire rope that is strong enough to carry the load with an ample margin of safety . . . able to stand incessant flexing and sharp bending without failure of wires due to fatigue . . . built to take the most severe abrasion and crushing. Then make sure that every foot of wire rope you own is inspected, cleaned and lubricated *regularly*.

Engineers and contractors who follow this procedure tell us that they are getting twice — sometimes three times—the life they expected from Tiger Brand Wire Rope, plus greater safety for crews and equipment and freedom from rope-caused work stoppages, all of which means important money savings.

When you are in the market for wire rope, make full use of the engineering knowledge of an expert who has made a life-work of analyzing and solving wire rope problems. Just drop us a line and your Tiger Brand Wire Rope Specialist will be glad to consult with you. Meanwhile, why not send in the convenient coupon for a copy of our latest book?

More than a million tons of oyster shells have been converted into chemicals at this plant. The owners have found that Tiger Brand Wire Rope stands up best under these severe abrasive conditions, cutting rope costs, reducing down time and keeping equipment at top capacity.

SEND FOR THIS NEW BOOK. It contains specification data that will help you select the right rope for each application. In descriptive text, illustrations, diagrams and tables, it gives you complete information on types of rope, diameters, working loads and safety factors for all sorts of rope service.

American Steel & Wire
Rockefeller Building, Dept. H-9
Cleveland 13, Ohio

Please send me your new book, "Specification Data, Tiger Brand Wire Rope."

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Company.....

Address.....

City.....Zone....State.....

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

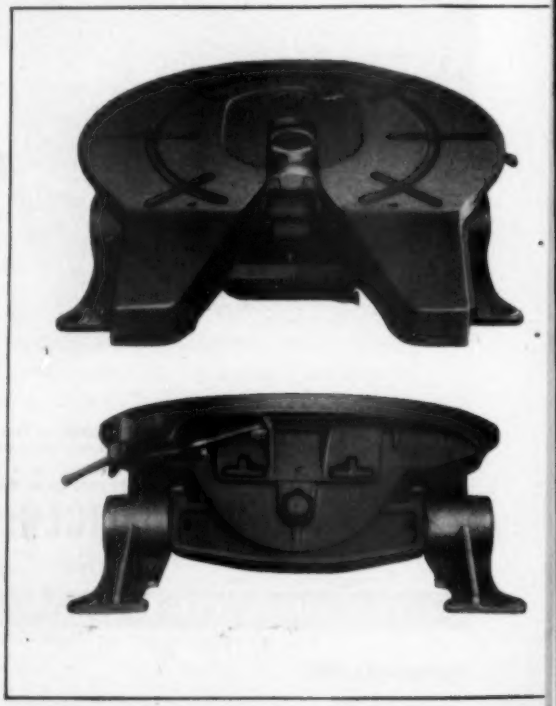
One of the four tandem units operated by Marquette Cement Company's quarry at Oglesby, Ill. . . . where ASF Safety 5th Wheels are standard equipment. Gross weight, including tractor, is 175,000 pounds; gross weight hauled by front 5th wheel, 160,000; net weight of load, 80,000.

20,000 pounds—down the hatch!

If you were looking for an operation that punishes 5th wheels, you couldn't find a tougher one than this. Side dumping—with the weight of the trailer and the load thrown off balance—builds up a wrenching, twisting strain that's concentrated on the 5th wheel. Not just once in a while, but many times—day in and day out.

Heart of the tandem—the ASF 5th Wheel

Here's the 36" extra-heavy-duty ASF Safety 5th Wheel made especially for the rugged service and heavy loads found in off-highway work. Cast alloy steel gives it the strength needed for handling loads up to 100 tons . . . side oscillation gives your units the flexibility needed to absorb the twisting side-strains of uneven roads.



The Marquette Cement Company proves that your best investment for safety and heavy-duty service is an ASF Safety 5th Wheel . . .

"best 5th wheel we've ever used"

Quarry work—just by the nature of the operations involved—gives most any kind of equipment a beating. And 5th wheels get their share!

As a case in point, take Marquette Cement Company's quarry in Oglesby, Illinois, where side-dumping tandem units are operated, each unit with 40,000 pounds net load. Read what Bill Spurr, Quarry Superintendent, has to say about his firsthand experience with ASF Safety 5th Wheels:

"We have been using ASF Safety 5th Wheels exclusively on our 4 tandems and 2 semi's for the last 6 years. The wheels we used before that time often took an hour or more to uncouple, but the problem was solved quickly by switching to ASF wheels. Now it doesn't take us more than 10 minutes to couple or uncouple.

"Side dumping of the load into the crusher hopper puts a heavy twisting strain on these 5th wheels, and in the case of the tandems, the front wheel is often pulling over 160,000 pounds gross.

"That's tough service, and these ASF Safety 5th Wheels are the best 5th wheels we've ever used."

There are sound reasons why ASF 5th Wheels can stand up in tough service. For example, the "I" beam crossbar is a recent development that helps the ASF 5th Wheel keep pace with the stresses of heavier equipment carrying heavier loads. King-pin bearing area is the largest of any 5th wheel made. Coupling is quick and easy—but uncoupling is impossible when the easy-to-see lock lever is in "locked" position. Side oscillation adds flexibility to your entire unit—tractor and trailer—so that it "rolls with the punch" instead of rigidly resisting the side strains of uneven roadway.

For complete freedom of interchange between motive power and load-carrying equipment, you can't top the quick convertibility of the *tractor trailer*. And, for the facts on the best 5th wheel investment you can make, see your nearest ASF Distributor, or write: American Steel Foundries, Automotive Division, 410 N. Michigan Avenue, Chicago 11, Ill.

remember this . . . about ASF safety 5th wheels

Largest king-pin bearing area of any 5th wheel . . . Stresses absorbed by a larger bearing area—larger than any other 5th wheel—means longer life for king-pin and jaws.

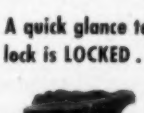
Shorter king-pin bending leverage . . . Jaws grip the king-pin at the top. The pin *stays straight*—and can't "spring" or disengage.

Side oscillation protects equipment . . . 1½° of free oscillation—plus 5½° controlled by rubber stabilizers—absorbs sidestrain of uneven roadway.

Heavy, cast alloy-steel construction . . . Plate is hinged on strong, rigid "I" beam with big 2" pin. Extra large contact area between plate and beam doubles rocker life. Both rocker and cast-steel bracket are bronze-bushed to cut wear to a minimum.

Easy to maintain in perfect operating condition . . . Wear is inevitable, but on ASF Wheels, it's easily counteracted simply by inserting one or more low-cost shims between buffer and housing front wall. Result? Like-new service, without expensive rebuilding!

A quick glance tells you the lock is LOCKED . . .

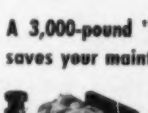


LOCKED—as quickly shown by the lever position. The easy-to-see lever can only be in this position when the jaws are truly locked.

UNLOCKING—with an easy twist of the wrist. Simply move the safety dog up, and pull the lever forward.

UNLOCKED—and ready for coupling. The lever moves back to locked position only when the jaws are locked!

A 3,000-pound "compression-grip" saves your maintenance dollars . . .



COUPLING—as the king-pin enters the jaws, the jaws are forced back against the exclusive ASF rubber buffer block, building up compression.

COMPRESSING—3000 pounds are built up before the lock clears the rear jaw, allowing lock to snap to locked position.

LOCKED—and the jaws *remain* under compression. The grip is like a vise; eliminates the slack and backlash that can cost you money in added 5th wheel and king-pin wear.

"Every American should have a nest egg"

FREDERICK C. CRAWFORD
President, Thompson Products, Inc.

"That nest egg can be in the form of U. S. Defense Bonds—a patriotic equivalent of cash. Defense-bond dollars grow. Americans who enroll in the Payroll Savings Plan become shareholders in Uncle Sam, Inc. With their chips in the game they are helping the country to deal with problems of finance and inflation. As investors in the nation they are more apt to vote for wise government policies to safeguard their investment."

Certainly every American should have a nest egg—and millions of them will: over 7,000,000 employed men and women, enrolled members of the Payroll Savings Plan, are putting aside approximately $150,000,000 per month in the improved U. S. Defense Bonds.

And there is no safer, better way to make dollars grow: the cash value of Series E Bonds held by individuals on December 31, 1951, amounted to $34.8 billion—$4.8 billion more than the cash value of Series E Bonds outstanding in August, 1945.

Employers, too, benefit from the Payroll Savings Plan: the Payroll Saver is a serious worker. He thinks twice before he takes a day off—he's mindful of the effect on his take-home savings. He's a more careful worker—he wants to keep off the accident list. Records show that as employee participation increases, absenteeism and "Lost Time Accidents" decrease and the production curve goes up.

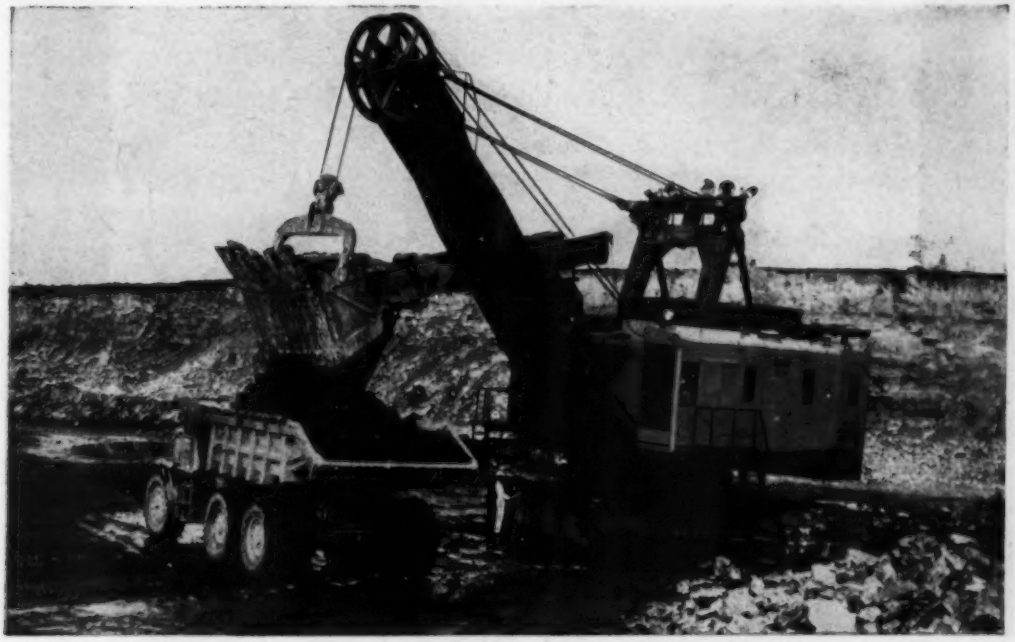
Call for a report on your Payroll Savings Plan. What is the percentage of employee participation? Is the plan being brought to the attention of new employees?

If your percentage is less than 50%, phone, wire or write to Savings Bond Division, U. S. Treasury Department, Suite 700, Washington Building, Washington, D. C. Your State Director will explain how easy it is to conduct a person-to-person canvass that will put a Payroll Savings Blank in the hands of every one of your employees. That's all you have to do. Your employees will do the rest—they *want* to join the plan that provides for their security.

The U. S. Government does not pay for this advertising. The Treasury Department thanks, for their patriotic donation, the Advertising Council and

PIT AND QUARRY

A Forecast by MARION



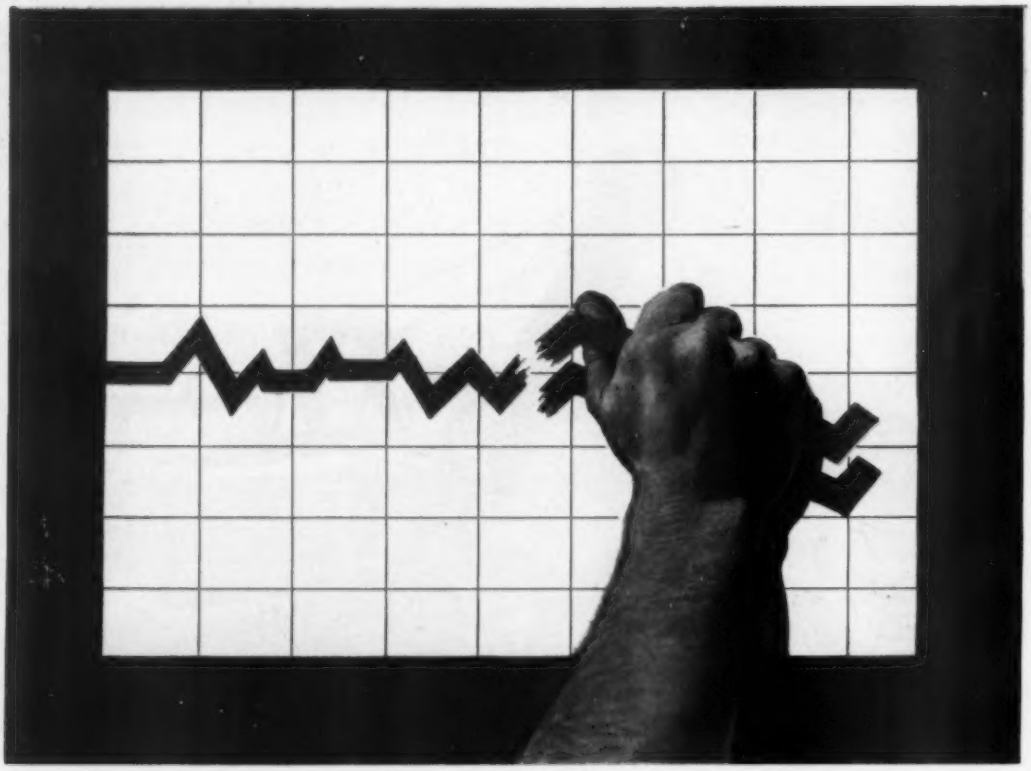
THIS NEW MARION 191-M....

. . . . is the world's biggest loading shovel — the biggest two-belt crawler shovel built. It is shown at work loading stone for a big construction project in Kansas. The 191-M has loaded up to 1,600 yards an hour in big 10-yard bites that fill trucks in the 50-ton class in 3 passes.

MARION predicts the 191-M will have a bright and busy future. For many reasons, it will have important applications in all kinds of open pit work. Some of the reasons:

- 10 Cu. Yd. Standard Shovel with 43' 8" Boom & 27' 4" Handle
- 7 Cu. Yd. Long Range Shovel with 65' Boom & 40' 4" Handle
- All-Electric or Diesel Electric Power, Ward-Leonard Control on Both
- An extremely Heavy-Duty Shovel with Small-Machine Cycle Time
- Greater Travel Speed and Maneuverability than most smaller machines

For more of the reasons, write, wire or phone Marion Power Shovel Co., Marion, Ohio. Since 1884. Offices in all Principal Cities.



Irreplaceable...production lost in idle kilns!

You can cut down on hot zone replacements in rotary cement kilns which steal precious production time when you install Permanente Periclase-Chrome refractory bricks.

That's because patented Permanente Periclase-Chrome bricks are *especially designed* for hot zone linings in cement kilns.

With Permanente Periclase-Chrome bricks you get a lining of maximum refractoriness that is highly resistant to chemical attack by cement clinker. They take a good coating, hold it well, and have great resistance to thermal shock.

Verified performance records show that Permanente Periclase-Chrome bricks have withstood as many as *17 shutdowns* for various causes *without any loss of brick due to spalling.*

If you feel that an appraisal of your rotary kiln performance would be helpful, Kaiser Chemicals will be glad to work with you. Installation assistance also is available at no extra cost.

Standard brick sizes supplied in both burned and chemically bonded forms. Recently expanded facilities insure superior service. Call or write principal sales offices: *Chemical Division,* Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, California. First National Tower, Akron 8, Ohio.

Kaiser Chemicals

Pioneers in Modern Basic Refractories

Basic Refractory Brick and Ramming Materials • Dolomite • Magnesia • Magnesite • Alumina • Periclase

- The pulley for *modern* belt conveyors.
- Steel hubs with famous Taper-Lock bushing (patented) give equivalent of shrunk-on fit. No "walking" on the shaft. Easy on—Easy off.
- Drum type construction provides maximum strength with minimum weight.
- Accurately formed. Uniform rim thickness. Fully enclosed—to exclude dust, dirt, water.
- Diameters 6 in. to 8 ft., all face widths. Popular sizes stocked by our distributors.

DODGE of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Equipment" in your classified telephone directory.

DODGE MANUFACTURING CORPORATION
4000 Union Street, Mishawaka, Indiana

FIRST IN POWER TRANSMISSION MACHINERY!

V-BELTS AND TAPER-LOCK SHEAVES

TORQUE-ARM SPEED REDUCERS

DODGE-TIMKEN PILLOW BLOCKS

ROLLING GRIP AND DIAMOND D CLUTCHES

Having trouble with this tough trio?

switch to SUPER-TEMPERED PRECISION SPACE SCREENS

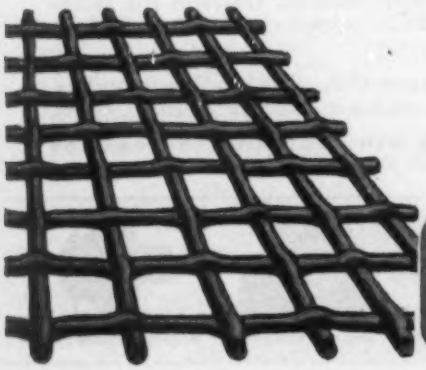
Abrasion . . . Vibration . . . Fatigue! Here's a trio of trouble-makers that can play hob with your production schedules when they team up against ordinary screens.

Want to make 'em yell quits? Just install Super-Tempered Precision Space Screens and find out what extra durability and tightness can mean to you in less downtime, longer, more accurate service, greater tonnage output at lower cost. And here's why:

- **Hard and tough steel**
- **Precision crimping**
- **Powerful looming**

To order, write or phone our nearest district sales office.

THE COLORADO FUEL AND IRON CORPORATION – Denver, Colorado
THE CALIFORNIA WIRE CLOTH CORPORATION – Oakland, California
WICKWIRE SPENCER STEEL DIVISION – Atlanta, Boston, Buffalo, Chicago, Detroit, New York, Philadelphia



SUPER-TEMPERED
PRECISION SPACE SCREENS
PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION
CF&I

Have you a dust recovery problem?

Bring it to WESTERN PRECIPITATION

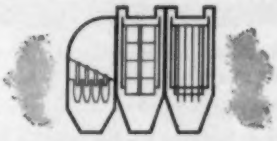
... The Only Organization With Years Of "Know-How" In BOTH *Electrical* And *Mechanical* Recovery Methods!

If you have any kind of a suspension-recovery problem—whether dust, fly ash, fume, fog or mists—it will pay you to bring it to the leading organization in the field ... WESTERN PRECIPITATION CORPORATION. Western Precipitation not only pioneered, over 44 years ago, the first commercial application of the now-famous COTTRELL Electrical Precipitators, but also has been a leader for many years in the *mechanical* recovery field with its widely-accepted MULTICLONE Collectors.

Result:

Western Precipitation is unsurpassed in the all-important factor of "know-how" in BOTH the electrical and mechanical fields ... knows from years of first-hand experience whether your particular problem can best be solved by mechanical or electrical methods—*or by a combination of the two* ... can give you a direct and unbiased recommendation on the matter ... and then can provide the complete installation under *one* responsibility, *one* overall performance guarantee, even where Combination Multiclone-Precipitator (CMP) installations are made!

Western Precipitation products and services include ...



COTTRELL

Electrical Precipitators

... the most efficient recovery equipment for high recovery, long life, low maintenance on practically any type of suspensions, wet or dry. COTTRELLS can be designed to handle a few c.f.m. —or millions—with equal ease, and at virtually any operating temperature. Recovery efficiencies closely approach 100% recovery, if desired, with very low draft loss, minimum power costs and negligible labor costs. *By all standards, Western Precipitation COTTRELLS give highest recovery at lowest cost per-year-of-service!*

MULTICLONE

Mechanical Collectors

... the most efficient, most compact, most trouble-free mechanical equipment for recovering suspensions from gases. Because of their unique small-tube design, MULTICLONES are unsurpassed in mechanical recovery efficiencies—require less space, less maintenance, and are far simpler to install. No filters or screens to replace, nothing to burn or cause fire hazards, no high speed moving parts to repair or replace. These and many other advantages make MULTICLONE Collectors the logical choice on installations where mechanical recovery is selected.

CMP UNITS

(Combination Multiclone-Precipitator)

... combine, in *one* compact installation, both mechanical and electrical recovery principles so that maximum benefit is obtained from the advantages inherent in each method. The MULTICLONE section centrifugally removes the larger and heavier suspensions (down to a few microns in diameter) ... and the COTTRELL section then electrically removes the very small particles remaining in the gases. Thus, the bulk of the recovery is obtained with relatively low-cost equipment, and the final clean-up is obtained with equipment having unusually high recovery efficiency—approaching theoretically perfect, if desired.

The recovery of suspensions from gases is a highly exact science and every problem is different. Some require mechanical methods—others electrical methods—still others a combination of mechanical and electrical methods in proper balance to meet the individual requirements of each application. No matter what your problem, remember that only Western Precipitation has had years of field experience in BOTH mechanical and electrical methods!

Send for descriptive literature!

Let our experienced engineers study your recovery requirements and make an unbiased recommendation on the equipment best suited to your particular problem. A wire, phone call or letter to our nearest office places this unique "know-how" at your service, without obligation.

WESTERN Precipitation CORPORATION

ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR COLLECTION OF SUSPENDED MATERIALS FROM GASES & LIQUIDS

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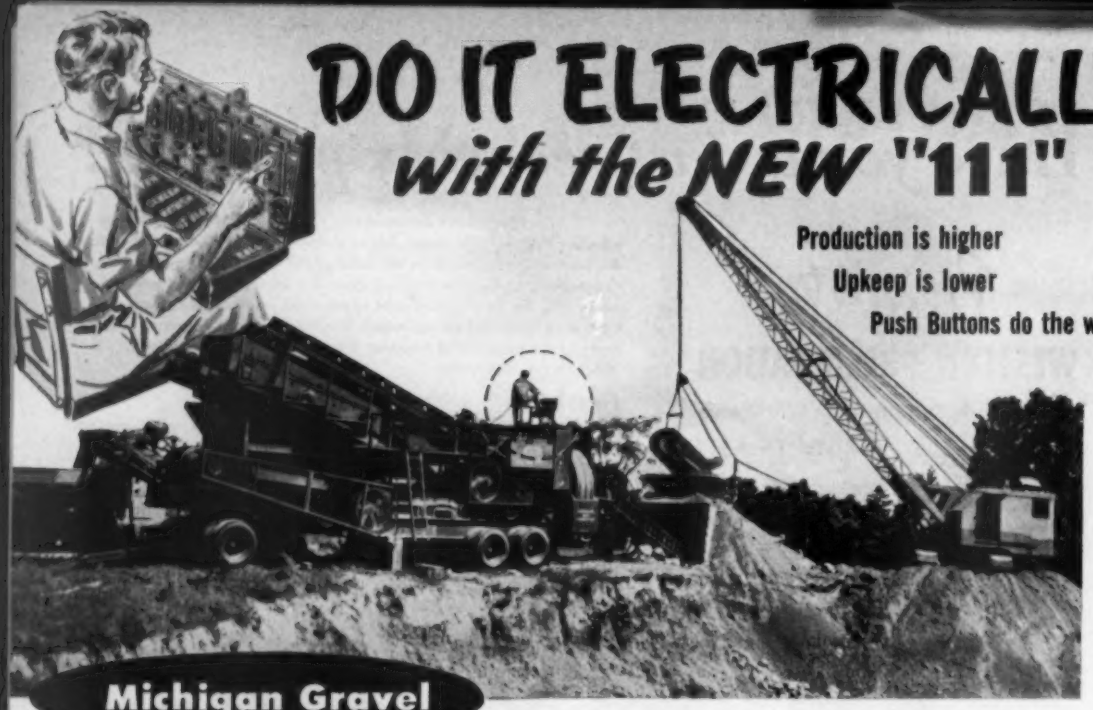
CHRYSLER BLDG., NEW YORK 17 • 1 N. La SALLE ST. BLDG., CHICAGO 2
1429 PEACHTREE ST. N.E., ATLANTA 5 • HOBART BLDG., SAN FRANCISCO 4
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

MULTICLONE—T.M. Reg.

DO IT ELECTRICALLY
with the NEW "111"

Production is higher
Upkeep is lower
Push Buttons do the work



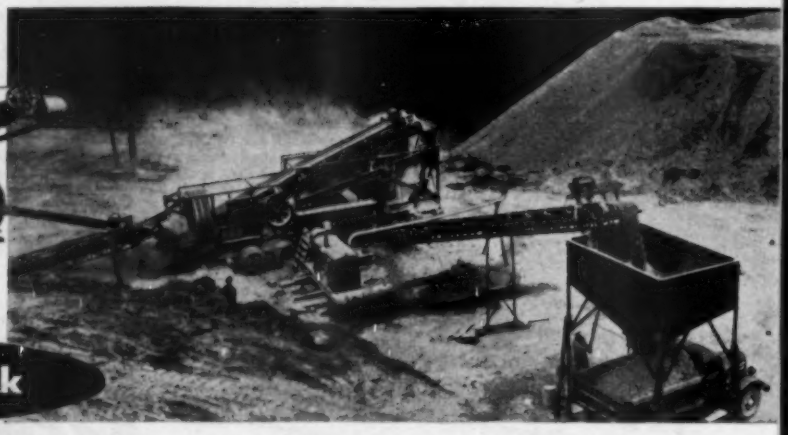
Michigan Gravel

Production is higher—because each unit has its own electric motor drive; thus operates at top speed and efficiency at all times.

Upkeep is lower—because drives are simple and have few parts.

Push buttons do the work—the man on the platform starts and stops the feed and delivery conveyors, and has other units under complete control.

Primary Breaker units are made in several sizes; this one has a 3' x 10' apron feeder, 20" x 36" jaw crusher, power unit and delivery conveyor—all mounted on pneumatic tires.



Carolina Rock

The high production "111," with its 10" x 36" jaw and 40" x 24" roll crushers, is equally at home in gravel and rock. On this quarry job, production is still further increased by using a Primary Breaker unit with 32" x 40" jaw crusher (not visible in the photograph) to reduce the oversize to about 5 inches.

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
Lima, Ohio, U.S.A.

Here are ways you can help him deliver the goods in the coming election

This worker's future—and yours—depends on how well he understands the importance of his vote and the importance of voting wisely. Too many of us fail to vote, to choose our leaders wisely, to guide them *in the direction we want to go.* You can help workers in your own business vote effectively by showing them how their votes, intelligently cast, can build a better America.

HERE ARE THE TOOLS—USE *ALL* OF THEM...:

1. "KERRY DRAKE IN 'THE CASE OF THE SLEEPING CITY'"—To help give people a better understanding of their individual vote and what it can mean to community growth, good government and prosperity. This colorful new 16-page booklet follows the time-proven "comic book" technique . . . dramatizes the relationship between civic responsibility and the ballot.

THIS BOOKLET HAS BEEN TESTED in our own plants by the Psychological Corporation . . . and *proven effective.* Because good government is everyone's business, Bemis is making "THE CASE OF THE SLEEPING CITY" available to you at nominal cost for distribution to your people.

2. "YOUR VOTE IS VITAL"—A pictorial booklet showing the factors that help a citizen become an intelligent voter—how to understand political issues; how to compare candidates' promises with their records; how to study local issues; how to register; how to vote by machine or by ballot, etc. A useful booklet that will help YOUR employees.

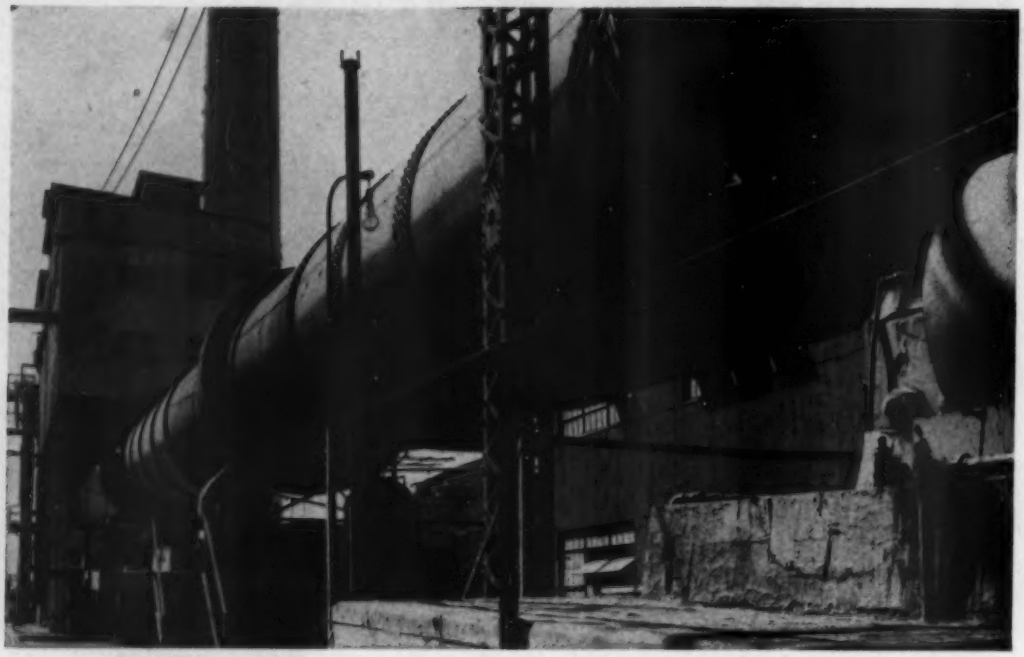
3. "THE MAN WHO WOULDN'T QUIT"—Another tested-and-proved booklet, in comic book technique, which spells out every man's personal responsibility for good government. Announced a few weeks ago, this booklet has already had wide acceptance. It will help YOUR employees.

For samples and complete information, without obligation, mail this coupon now!

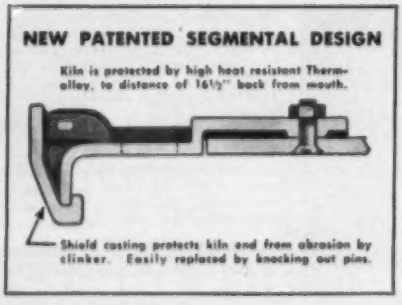
HARVEY PUBLICATIONS, INC.
1860 Broadway, New York 18, N. Y.
I'm interested in "The Case of the Sleeping City" ☐ ; "YOUR Vote is VITAL" ☐, "The Man Who Wouldn't Quit" ☐. Send samples and quantity cost information.

*Your Name*_____
*Firm*_____
*Address*_____
*City, Zone, State*_____

Because we believe these messages, published by Harvey Publications, are growing more urgent every day, Bemis is taking this means to recommend them to every business. Permission to reproduce this advertisement in association magazines, company magazines, etc., will be granted upon request. Plates will be sent without charge. BEMIS BRO. BAG CO., St. Louis 2, Missouri.



THERMALLOY* KILN END "RETIRED" AFTER 15 YEARS' SERVICE


NEW PATENTED SEGMENTAL DESIGN
Kiln is protected by high heat resistant Thermalloy, to distance of 16½" back from mouth.
Shield casting protects kiln end from abrasion by clinker. Easily replaced by knocking out pins.

Back in 1935, the Ideal Cement Company of Okay, Arkansas, purchased a spare set of Thermalloy Kiln Ends. Yet they were actually placed in service only during the past year.

Reason: life of the original Thermalloy Kiln Ends was far beyond expectations—15 years to be exact.

Such service life is unusual, of course. But it does prove that Thermalloy's excellent heat-resisting properties give exceptional service life. In addition, the new segmental design illustrated at the left provides extra advantages.

One of our engineers will be glad to show you how Thermalloy's properties plus our improved segmental design lengthen kiln-end life. Write Electro-Alloys Division, 2038 Taylor Street, Elyria, Ohio.

*Reg. U. S. Pat. Off.

AMERICAN Brake Shoe COMPANY

ELECTRO-ALLOYS DIVISION
ELYRIA, OHIO

. . . "the rolls take a beating on this job!"

a report from

J. V. GLEASON

J.V. Gleason Co., Bituminous Contractors of St. Louis Park, Minn.

on their "66"

DIAMOND ROTOR-LIFT PLANT

BITUMINOUS SURFACING

J. V. GLEASON

3701 LOUISIANA AVENUE, ST. LOUIS PARK, MINNESOTA

DIAMOND IRON WORKS, INC.
1710 N. 2nd Street
Minneapolis 11, Minn.
Attn. C. E. Hanson, Vice President Charge of Sales

Dear Carl:

Direct from a year's operation in a state pit located near Lonsdale in Southern Minnesota, our Diamond "66" has yet to see downtime through parts failure. Now it is crushing a steady 150 y.p.h. of 25/ crush specification material at a site where the going is heavy and the strain is really on the 30" x 18" roll crusher. And we have seen no downtime yet. The plant's 10" x 36" jaw crusher and 4' x 10' — 2½ deck vibrator screen are helping to keep our "66" producing day after day.

We'll stick with Diamond plants for a lot of reasons, the chief being that they can take it when the going is rough.

Very sincerely yours,
J. V. Gleason
J. V. Gleason, Owner

ABOVE: Loading pit-run at 150 y.p.h. Power unit installed over delivery conveyor need not be removed when on road.

BELOW: Dumping pit-run into Diamond shovel-loading hopper. A Diamond grizzly and single eccentric plate feeder keep a continuous, regulated feed.

Everything . . . for the aggregate producer

DIAMOND

DIAMOND IRON WORKS, INC.
AND THE MAHR MANUFACTURING CO. DIV.
1756 N. 2ND STREET, MINNEAPOLIS 11, MINNESOTA

AN OLD TIMER - - - STILL IN THE PRIME OF LIFE!

Calvin Coolidge was the President of the United States! the flapper was in vogue! and sound movies were yet to make their debut when the Plymouth pictured above went to work for the Cherokee Brick Company, Raleigh, North Carolina.

And yet, after 24 years this powerful 8-ton locomotive is still hauling eight carloads of clay up and down a 10% grade, over a two mile run from pit to mill at Cherokee's Brickhaven plant, averaging 40 hours a week!

"Our operators like the power and hauling capacity . . . and we like the exceedingly low maintenance costs of our Plymouth," says J. F. Johnson, President of Cherokee. "We have used other methods of transportation on occasion; but our Plymouth tops them all for economy!"

You can count on the same Plymouth operating economy, long life, and dependability today! With the advanced engineering features of "Industries' Favorite Switchers", Plymouth Locomotives are built in 3 to 70-ton sizes for narrow and standard gauge track. Find out now how you can cut haulage costs and speed production; send today for latest Plymouth catalog. PLYMOUTH LOCOMOTIVE WORKS, Division of THE FATE-ROOT-HEATH COMPANY, Dept. A-15, Plymouth, Ohio.

PLYMOUTH LOCOMOTIVES

ALSO MANUFACTURERS OF F-R-H CERAMIC MACHINERY

NOW... SCREEN FINE, MOIST MATERIALS Without Blinding!

THERMO-DECK Heating Unit

NO "TIME OUT" to clear fine or medium mesh screen cloth! You can screen fine, moist non-combustible materials *continuously* with new *Thermo-Deck* heating unit.

INCREASED CAPACITY! Heated screen cloth *remains* open, permitting more tonnage through the screen and better separation.

LOWER COSTS! Operating records show that heated screen cloth lasts up to three times as long when cloth does not have to be pounded free of blinding material. The *Thermo-Deck* heating unit can be easily applied in the field. Your nearby A-C representative can give you more details. Allis-Chalmers, Milwaukee 1, Wisconsin. A-3602

POWER ON — *Thermo-Deck* heating unit keeps screen cloth clear on screen handling pulverized limestone.

POWER OFF — Troublesome blinding results on same screen when *Thermo-Deck* heating unit is turned off.

Send for...

New 8-page bulletin containing complete facts on operation and application of the *Thermo-Deck* heating unit.

Bulletin 07B7812

Thermo-Deck is an Allis-Chalmers trademark.

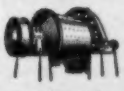
ALLIS-CHALMERS A-C

Sales Offices in Principal Cities in the U. S. A. Distributors Throughout the World.

Pulverator

Jaw Crushers

Gyratory Crushers



Grinding Mills

Vibrating Screens

Kilns, Coolers, Dryers

HERE'S HOW *Burns Brick Co.* increased clay supply from 30 to

New method cuts manpower needs 55%, reduces costs 66%

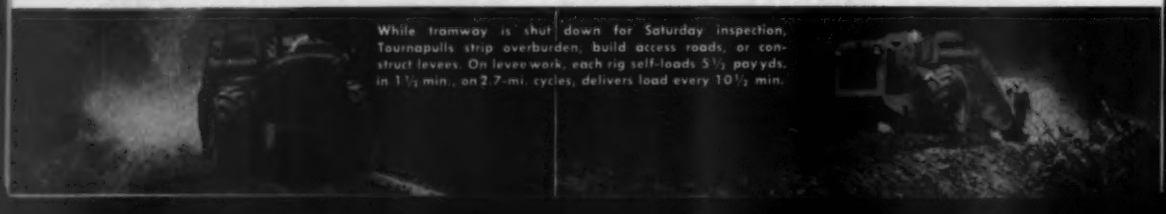
Getting enough alluvial clay to fill ever-increasing production goals has always been a problem for Burns Brick Company, Macon, Georgia. Prior to 1942, material was hauled from pit to plant in shovel-loaded dump trucks. From 1942 to 1950, 4 diesel trains of 4 cars each were used. Production reached 30 tons an hour with this method . . . but, by 1950, demand had exceeded even this supply. More clay was needed . . . fast! The job of boosting output fell to the company's vice president, Henry K. Burns, Jr.

Tournapulls solve feeding problems

Burns had his men build a 3-mile pit-to-plant aerial tramway, running from a hopper and feeder at the clay pits to a 50,000-ton storage shed at the plant. 187 one-ton capacity aluminum buckets spaced 160′ apart and moving 6 m.p.h. were provided to carry the material over the long cable. About 180 tons of clay could be brought in hourly, *if* the hopper could be fed fast enough. First feeding tools tried were 2 crawler-scrapers with 19 yds. combined capacity. Even under the most favorable conditions, these 2 rigs could deliver only 120 tons hourly. Next Burns tried 2 rubber-tired 7-yd. D Tournapulls. They solved the problem! Output was more than enough, and costs were low. After more than a year of operation, major benefits were analyzed as follows:

1. *More production.* Tournapulls have helped boost output *6 times* over that of dragline and rail cars and *50%* over crawler-scrapers — from 30 to 120 to 180 tons per hour. Company production records show the 2 "D's" have averaged 1727 tons per 9½-hour shift . . . or 90.9 tons per hour per machine. At times, the "D's" have supplied enough clay in 20 hours to last the brick production line for a week. In spare time, rigs build access roads and levees on Burns Company property.

2. *Lower costs.* Conversion to the new feeding method has cut costs by two-thirds, according to accurate records kept by the company. Says Mr. Burns: "Our 2 D Roadsters are giving us high production at a very low cost per ton. *Negligible tire wear* (less than ⅛" on drive tires after 9 months of use) and *low fuel consumption* (about 3 gallons per hour per machine . . . or 30 tons of clay per gallon)



While tramway is shut down for Saturday inspection, Tournapulls strip overburden, build access roads, or construct levees. On levee work, each rig self-loads 51½ pay yds. in 1½ min., on 2.7-mi. cycles, delivers load every 10½ min.

Loaded "D's" climb 12% to 15% grade on 100' ramp to tramway hopper. With increased clay supply, the Company now turns out 1,250,000 bricks per week. Ten years is the expected life of this pit before tramway will have to be extended.

180 tons hourly

—together with Tournapulls' *efficient electrical system* and their *self-loading ability*—are reflected in the low cost of each ton of clay we move."

3. *Fewer men.* Stripping and hauling with the rail system required a crew of 20 . . . the tramway system requires only 9. Besides the 2 D Roadster operators, 3 men are at loading stations, 2 at clay shed, and 2 at intermediate angle stations. In the near future, the 2 angle station positions may also be eliminated.

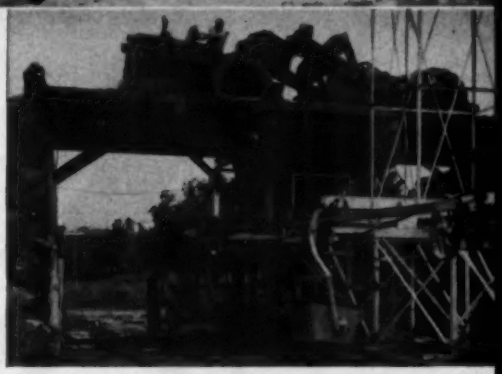
4. Better mixture control. By making thin cuts of rich clay from one part of pit, and selectively-loading lean clay from another part, Tournapulls automatically blend material in mixture best suited for use at plant. As Burns puts it, "Tournapulls' ability to self-load either slippery wet or hard dry clay enables us to get a more uniform mixture, assuring us a more constant size and a more uniform color in our bricks."

Reduce your costs, speed output

Investigate how much Tournapull can save and earn on *your* dirtmoving. See for yourself . . . ask your LeTourneau Distributor for production data on work like yours.

R. G. LeTOURNEAU, INC.

Peoria, Illinois



Maintaining 3-to-1 side slope for good drainage, Tournapulls self-load rich and lean alluvial clay in blend best suited for use at factory. Loading in 2nd gear, "D's" make shallow cut over 60' to 300', shaving clay in small pieces for easier handling at plant.

DP-31-BC

BUCYRUS ERIE

6-YARD

150-B

Brings NEW SPEED, POWER, CAPACITY

To Loading and Stripping

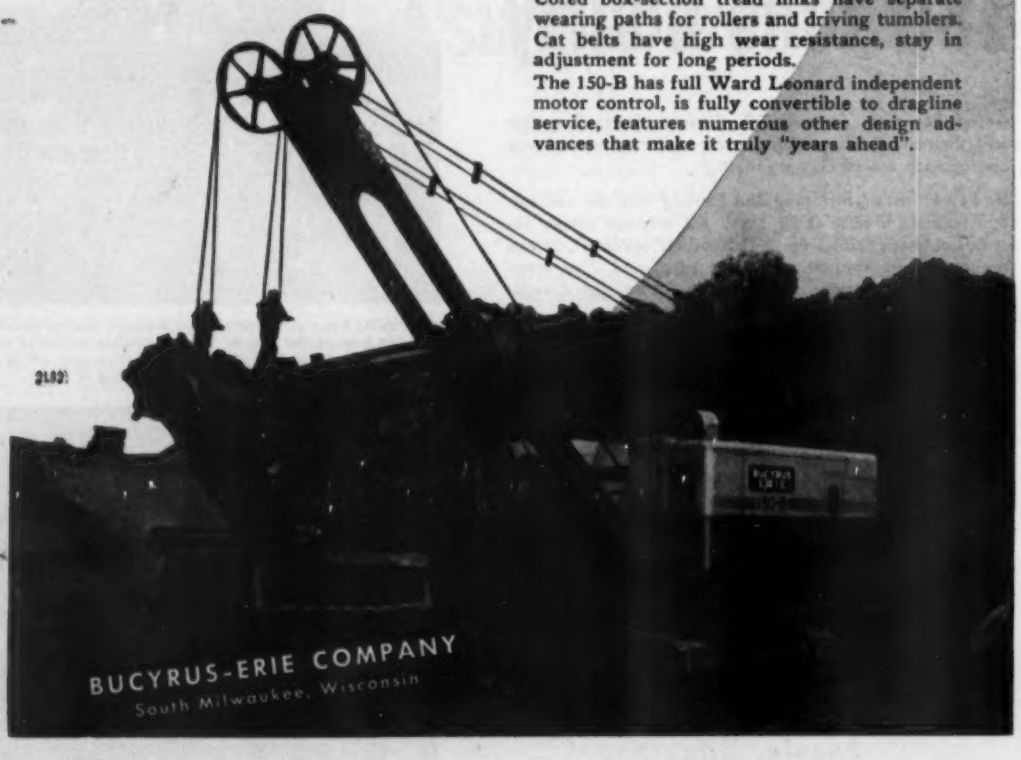
ADDED to the time-proved superiorities of design and construction which have made Bucyrus-Erie quarry and mining shovels traditionally "years ahead" are important features new to an excavator of this size, yet *thoroughly proved in the field*. Among these 150-B features are:

Exclusive Two-Section Boom with tubular dipper handle free to rotate in saddle block. Used with outstanding success on Bucyrus-Erie's large stripping shovels for many years, this design speeds the working cycle and permits increasing the payload because it reduces front end weight materially — yet provides enormous strength. Upper boom section carries only load resulting from pull of ropes, strong trussed lower section transmits directly to the revolving frame the vibrations, torsional and shock loads set up in digging. Rope crowd is quiet, positive, with crowd machinery located on the deck.

Powerful New Main Machinery designed for double twin hoist, smoothly delivers power where you want it, when you want it. Hoist machinery pulls dipper straight through tough banks with steady positive action. Fast smooth swing, with quick acceleration and deceleration, shaves seconds off every cycle.

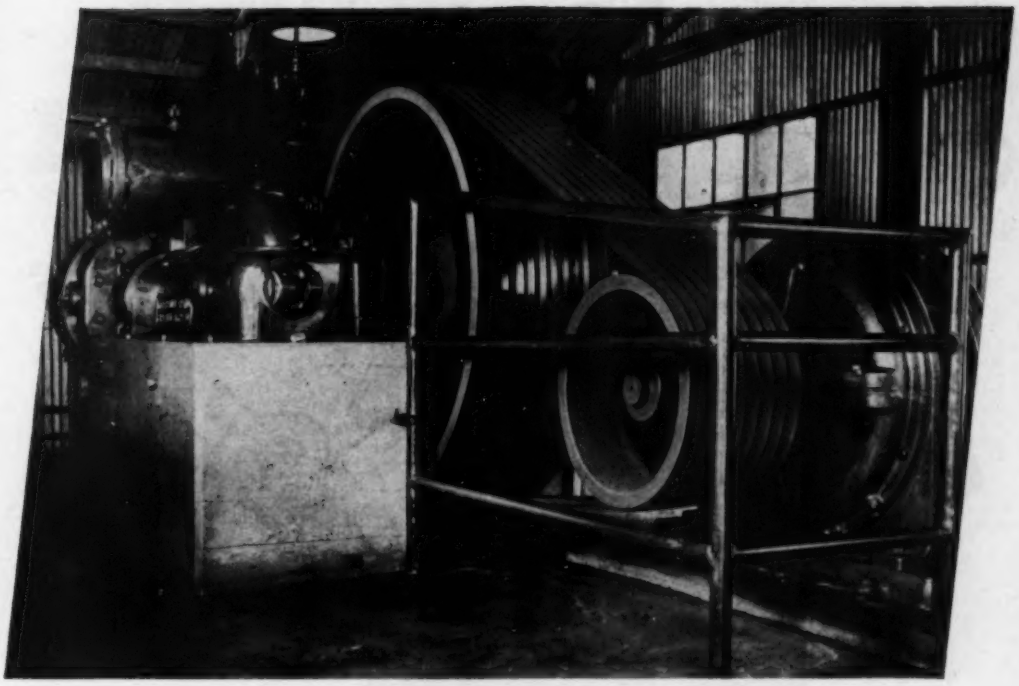
Larger Stronger Mounting has new propelling machinery arrangement, which provides rapid engagement of the propel for fast move ups. Cored box-section tread links have separate wearing paths for rollers and driving tumblers. Cat belts have high wear resistance, stay in adjustment for long periods.

The 150-B has full Ward Leonard independent motor control, is fully convertible to dragline service, features numerous other design advances that make it truly "years ahead".



BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin



Keep your production in the groove with **Thermoid V-Belts**

Production men, in all kinds of industries, rely on the greater strength and longer life in Thermoid V-Belts to provide smooth, efficient performance and long wear . . . keep production in the groove.

From huge multiple V-Belts of rayon grommet construction to the smallest fractional horsepower belts, you can always depend on Thermoid quality.

The result is V-Belts with minimum stretch and extreme flexibility . . . designed to transmit maximum power without slippage . . . able to withstand high speeds and absorb shock.

All these advantages add up to lower operating and maintenance costs, and in the long run, the most economical V-Belts you can specify for the job.

Call your nearest Thermoid distributor today. He has a complete range of sizes to meet your requirements. And for your special V-Belt problems, experienced Thermoid Sales Engineers are always ready to help you.

Thermoid Industrial Rubber Products — Quality Service

Conveyor & Elevator Belting • Transmission Belting
F.H.P. & Multiple V-Belts • Wrapped & Molded Hose

Thermoid

Rubber Sheet Packings • Molded Products
Industrial Brake Linings and Friction Materials

Thermoid Company • Offices & Factories: Trenton, N. J., Nephi, Utah

BEAT DOWN COSTS 4 WAYS

You bet DETONITE beats down costs. And we'll prove it to you right at your own quarry. You'll see how DETONITE cuts these 4 major operating costs:

1. BLASTING COST

KING DETONITE is a slow-detonating powder. Its slow, heaving, spreading action lifts and fully displaces the burden. High cost of secondary drilling and shooting is greatly reduced.

2. ROCK-HANDLING COST

KING DETONITE breaks up rock into sizes that permit shovels to dig efficiently at all times, thus reducing handling costs to a minimum.

3. EQUIPMENT MAINTENANCE COST

KING DETONITE's proper fragmentation means less wear and tear on expensive equipment . . . less cost for maintenance and replacement.

4. PROCESSING COST

KING DETONITE's proper fragmentation allows your crushers to operate at top capacity, thus lowering cost of processing the stone.

4 WAYS TO CUT COSTS

King Powder Co., Inc.
Cincinnati 1, Ohio

SHOW ME how DETONITE will cut my costs 4 ways. Without obligation, have the King Representative get in touch with me to arrange for a DETONITE demonstration right at our quarry.

Name_____
Title_____
Company_____
Address_____

or phone us collect

KING DETONITE

PATENTED SURFACE-SENSITIZED EXPLOSIVE

THE KING POWDER CO., INC

CINCINNATI 1, OHIO

MAKERS OF QUALITY EXPLOSIVES SINCE 1878

Built to Resist Tube Swelling

...and to withstand toughest use

TUBE SECURELY LOCKED BY SPECIAL STAINLESS STEEL INNER WIRE BRAID

Illustration shows, in magnified detail, the exclusive protection feature—special stainless steel inner wire braid—you get only with CONCORD #20 STEAM HOSE. Promotes extra safety and longer hose life—fights tube swelling.

This famous BWH hose features a structural "exclusive" that's there for one purpose: *to fight tube swelling under continuous high pressure.*

Protection found only in CONCORD #20 STEAM HOSE, this consists of a tough inner lining of stainless steel wire braid. This helps assure retention of original inside hose diameter . . . acts against swelling and constriction of tube . . . promotes full flow of steam and easy recoupling in the field when necessary.

Other construction features of CONCORD #20 include: two or three braids (depending on size) of alternate high tensile steel wire and rubber layers firmly bonded over outside of tube . . . to provide maximum burst protection and safety; asbestos braid gives positive cover adhesion and serves as cover insulator; finally, the rugged, abrasion-resistant cover is built to withstand severest abuse.

FLEXIBLE . . . TOUGH . . . DEPENDABLE, that's CONCORD #20 STEAM HOSE. Put it to work for you now, get in touch with your nearby BWH distributor today.

BWH
DEPENDABLE RUGGEDNESS

Another Quality Product of

BOSTON WOVEN HOSE & RUBBER CO.

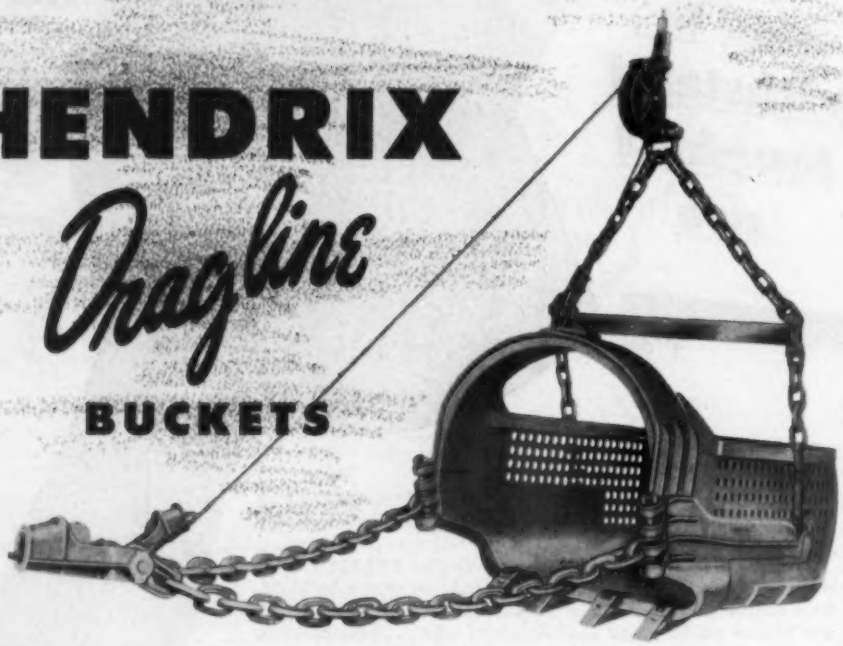
Warehouse Stock: 111 N. Canal St., Chicago, Ill. Distributors in all Principal Cities

PLANT: CAMBRIDGE, MASS. · P. O. BOX 1071, BOSTON 3, MASS., U. S. A.

When it's production that counts

you can rely on...

HENDRIX *Dragline* BUCKETS



3 TYPES
FOR
EVERY DIGGING PURPOSE
¾ to 40 Cu. Yds.

A full bucket every time . . . and the minimum of maintenance cost, both in dollars spent and time consumed, will result in more profitable production for you. Dragline operators are becoming more and more enthusiastic over the rugged construction, full payloads, and low upkeep of Hendrix Dragline Buckets. They're engineered by men with "know-how" to give you BIGGER PAYLOADS AT LOWER COST. Ask the man who uses one . . . he knows!

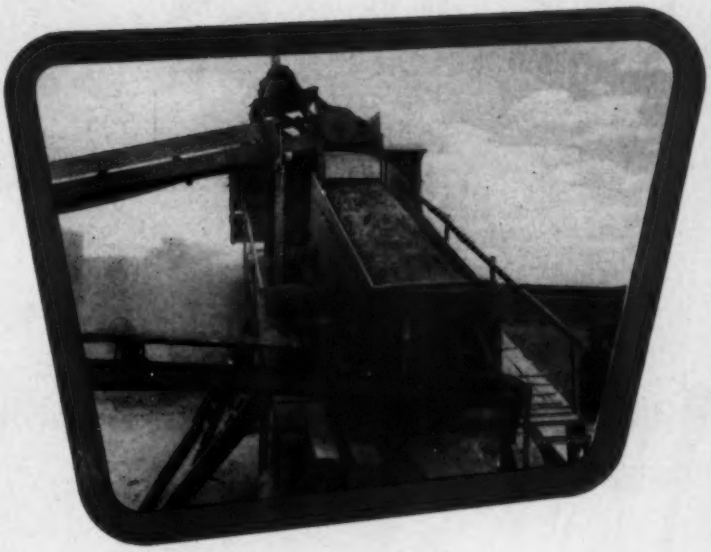
Hendrix Buckets May Be Special Ordered Without Perforations

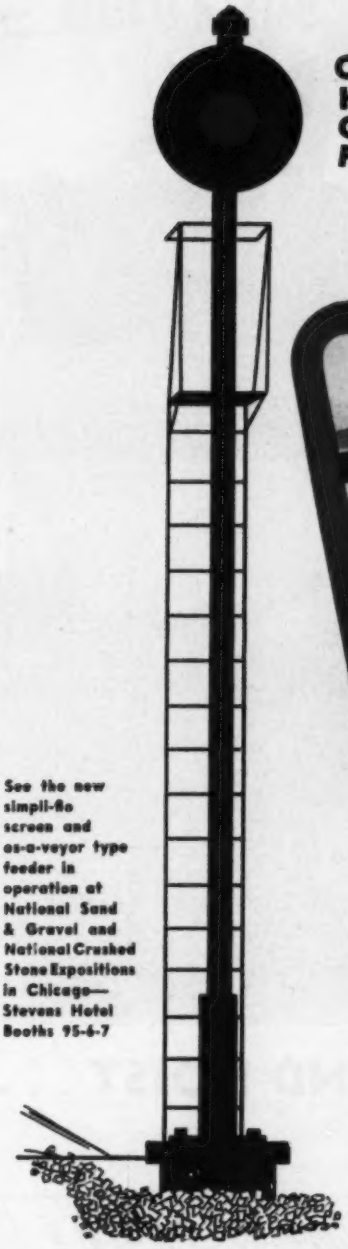
HENDRIX *Lightweight* **DRAGLINE BUCKETS**

HENDRIX MANUFACTURING CO., INC.

MANSFIELD – LOUISIANA

ONE SIMPLICITY FINISHING SCREEN HELPS PRODUCE 1500 CUBIC YARDS OF RAILROAD BALLAST DAILY FOR MORRIS KNUDSEN CO., INC.





See the new simpli-flo screen and as-a-veyor type feeder in operation at National Sand & Gravel and National Crushed Stone Expositions in Chicago—Stevens Hotel Booths 95-6-7

When Morris Knudsen Co., Inc., one of the nation's largest contractors, goes into the production of a new rock products commodity, there's usually some pretty fine equipment on the job. So it's not surprising to find a Simplicity Finishing Screen at work in their new Blaisdell, North Dakota, plant for the production of gravel railroad ballast. This plant produces over 1500 cubic yards of finished ballast every day, using a 4' x 14' Simplicity Triple Deck Screen to screen out plus 1½" material for return to the crusher and also to size and separate the minus 1½" to plus ¼" product. Simplicity equipment can improve your operations, too. Write today for full facts.

110

Sales representatives in all parts of the U.S.A.
FOR CANADA: Canadian Bridge Engineering Company Ltd., Walkerville, Ontario
FOR EXPORT: Brown and Sites 50 Church Street, New York 7, N. Y.

Simplicity
TRADE MARK REGISTERED
ENGINEERING COMPANY • DURAND, MICHIGAN

you can go down and get it 15" below grade

you can go up and get it 15 feet above grade

—and do it with CROWD AND HOIST . . . no wheel traction . . .

If you are doing excavation work you probably realize the mechanical advantages of big shovels—simultaneous and independent hydraulic crowding and hoisting, variable crowd action at any dipper position, changeable buckets, etc. But, do you know all these advantages have been engineered into the Dempster-Diggster to give you a faster, more versatile excavator, on pneumatic tires with a 1 cu. yd. capacity. In addition the Dempster-Diggster does anything a conventional front end loader can do—and does it faster at less cost with its 1½ or 2 cu. yd. bucket. In excavation the Dempster-Diggster is without equal for working in tight places . . . dumps at 11'3" height . . . travels at truck speeds from job to job. The versatile Dempster-Diggster is a fast, power-packed excavator and loader you can't afford to be without! Write today for our new catalog No. 1032. A product of Dempster Brothers, Inc.

DEMPSTER DIGGSTER
TRADE MARK REG.

DEMPSTER BROTHERS, 292 N. Knox, Knoxville 17, Tenn.

Here's the proved way to transmit high hp at high speeds...

Silverstreak Silent Chain does the job with a single strand—eliminating the dangers that come with one or more belts in a group carrying more than their share of the load.
Husky Silverstreak metal link construction combines the ability to carry heavy overloads with the resilience that really absorbs shock.
"Pull" is distributed equally across Silverstreak Silent Chain. No possibility of uneven running—slapping.
Silverstreak Silent Chain doesn't rely on tension to get pulling power—chain meshes with teeth—gives POSITIVE drive—no chance for slip.

Link-Belt Silverstreak Silent Chain drives are slip-proof...slap-proof...shock-proof

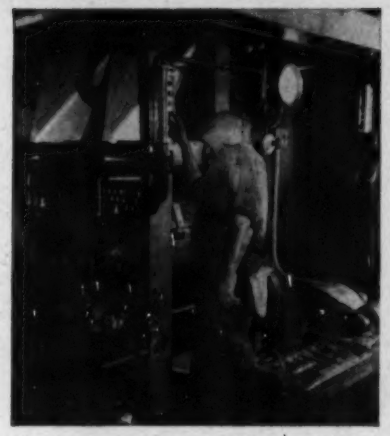
ON thousands of applications . . . under all types of operating conditions—Link-Belt Silverstreak Silent Chain Drives have proved their effectiveness and durability. High horsepowers and high speeds are delivered with the same trouble-free efficiency (over 98 per cent) as on less demanding loads. There's a power-transmission engineer in the Link-Belt office near you.

LINK-BELT

SILVERSTREAK SILENT CHAIN DRIVES

12.030

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, Factory Branch Stores and Distributors in Principal Cities.



As it has since 1940, a touch of the control button brings exact press speeds at the New York Herald Tribune. In those 12 years, there has been no replacement required on the two 100 hp Silverstreak Silent Chain Drives that power this press at chain speeds up to 3664 fpm.

ROCK RATED!

FOR ROCK BOTTOM COSTS

P&H MAGNETORQUE*

puts an end to the old swing frictions

We'll make this promise: You'll never have to "baby" this machine, even in the heaviest going! It's *built* for it — all-welded of alloy steels throughout, the toughest construction known. *It means steady digging.*

But the big pay-off in extra production comes with Magnetorque electric swing — enough faster to deliver 5 cycles to 4 on other machines in the 2½ yd. class. And the "time-outs" for adjustment and replacement of swing friction linings can now be salvaged for increased yardage. Magnetorque lasts the life of the machine.

*T.M. of Harnischfeger Corporation for electro-magnetic type clutch.

HARNISCHFEGER
CORPORATION
4451 W. National Avenue • Milwaukee 46, Wis.

Ask today for facts about the 955-A. Also the Model 1055 — its companion machine with 3½ yd. capacity.

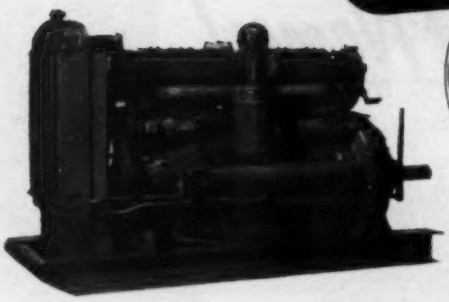
POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES

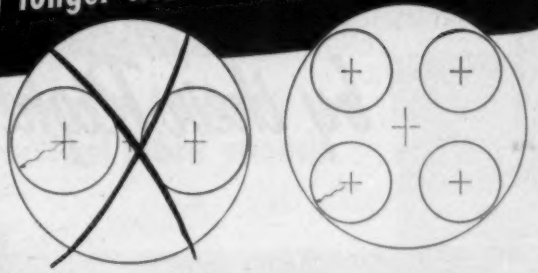
Here's why

MURPHY DIESELS

put more power into your job

with longer life and less maintenance





THE power a diesel engine develops is dependent to a great degree on the breathing capacity of the valves. Breathing capacity of the valves in turn is determined by the circumference of the valves and their lift. Thus, when we compare Murphy Diesel's 4 valve design with the conventional 2 valve design of equal total valve area, simple arithmetic shows that total circumference of the 4 valve arrangement is 41.4% greater. With equal lift, the breathing capacity is also 41.4% greater.

At the same time, Murphy design provides 41.4% more metal-to-metal contact between the circumference of the valve and the seat for dissipation of valve heat. This, coupled with the smaller valve radius in 4 valve design (which means the heat has a shorter distance to travel to escape), explains why Murphy valves run cooler and rarely, if ever, have to be ground.

Four valves per cylinder is just one of the many reasons for Murphy's high standards of performance and economy. Others are given in the booklet "10 Questions to Ask a Diesel Engine Salesman". Get a copy from your Murphy Diesel Dealer or write direct.

6 cylinder Murphy Diesel used to power a Cedarapids double impeller impact breaker rigged up as a portable primary unit.

MURPHY DIESEL

Heavy duty power

for rock crushing

Murphy Diesel Engines and Power Units for portable or stationary crushing plants, 90 to 226 H. P. 1200 and 1400 RPM. Generator Sets, 60 to 140 K.W.

MURPHY DIESEL COMPANY

5307 W. Burnham St., Milwaukee 14, Wisconsin

Sales, Parts, Service in Principal Cities

SALES, PARTS, SERVICE: Jacksonville, Miami, Panama City, Florida; Savannah, Ga.; New Orleans, La.; Portland, Maine; Baltimore, Maryland; Norfolk, Va.; Boston, Mass.; Gulfport, Miss.; Bivalve, N. J.; Houston, Texas

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Let's Call Wire Rope Constructions *by their Right Names!*

This is a message of importance to every user and purchaser of wire rope. It is information that will help eliminate much of the past confusion over wire rope terminology.

How did this confusion arise? Let's illustrate briefly. For years 6 x 19 has been just a name for a variety of six-strand ropes, few of which actually have 19 wires per strand. As an example, our popular 6 x 19 W has always contained 25 wires per strand; the 6 x 19 U, 21 wires per strand. The 6 x 19 Seale, on the other hand, really does have 19 wires in each of its strands. Until recently, the letter or name following the numbers denoted the actual construction; but many users did not know this, and the omission of these symbols occasionally resulted in costly misapplications.

To clarify matters in the various classes of rope, Bethlehem has revised the entire list of misleading designations. For instance, in the Bethlehem terminology, Type W rope is now designated—accurately—as 6 x 25 W (not 6 x 19); Type Q is 6 x 41 Q (not 6 x 37). This completely accurate terminology applies to each and every rope that Bethlehem makes.

Nothing has been changed but the designation. The ropes are made to the same high standards of Bethlehem quality. *Constructions are the same as in the past.* Only the names, the designations, are different. The numbers now mean what they say.

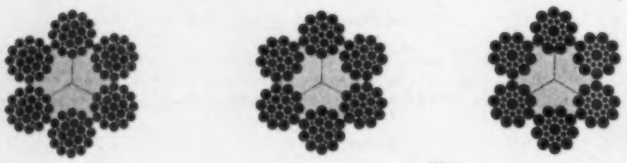
We earnestly solicit your help in publicizing this information. The transition now under way is one that has long been needed.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

6 x 25 Type W | 6 x 21 Type U | 6 x 19 Seale



Of these three ropes, Seale is the only one with 19 wires a strand. Yet for years all three types have been known as 6 x 19. This is not an isolated case. Similar instances occur in other classifications of rope.

OFF THE ROAD

GENERALS

ON THE ROAD

Resist cuts, scrapes, bruises...
Give more traction! More speed!
More safety—

WORK FASTER... LAST LONGER... COST LESS

more profit for you per job!

GENERAL L. C. M. Broad, deep, self-cleaning tread lugs and reinforced shoulders for more traction off-the-road. Longer wear on razor sharp mine and quarry surfaces.

GENERAL H. C. T. for most work on-the-road, some off. More rubber, more cords per inch for greater safety. Extra traction through sand, gravel, slush, mud.

THE GENERAL L.C.M.

THE GENERAL H.C.T.

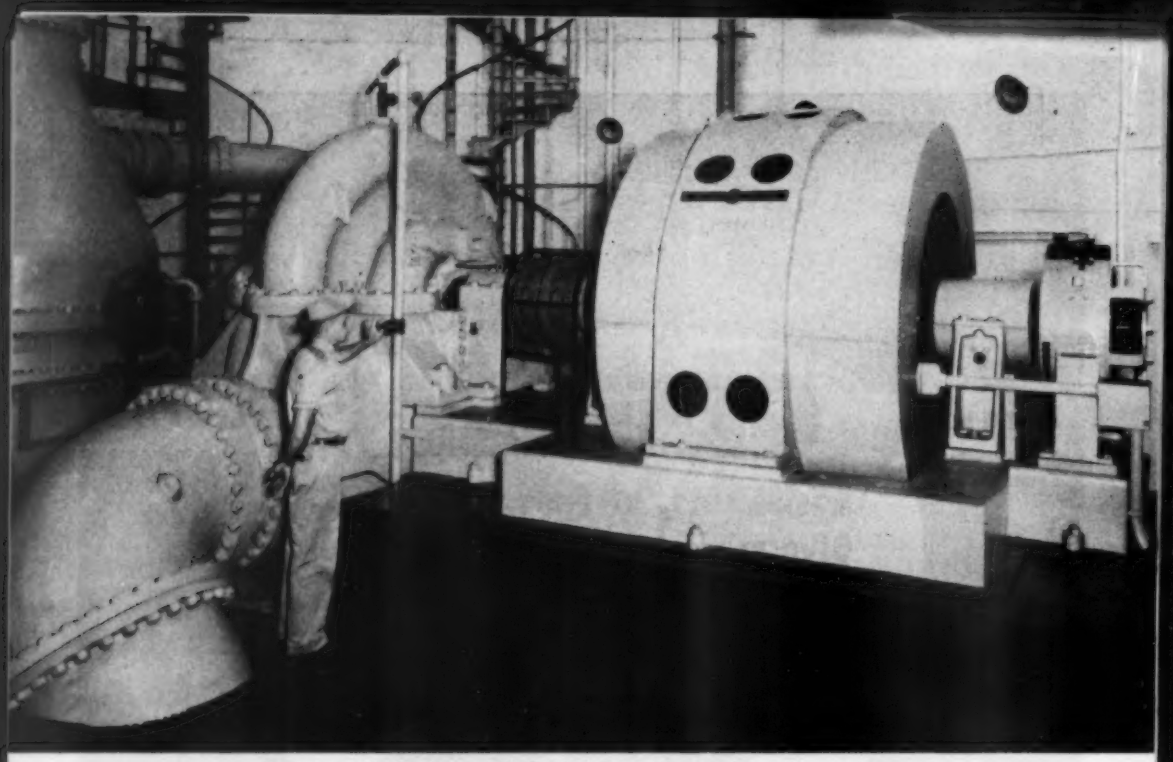
Make Every Worn Tire Work Longer for More Profit!

Your GENERAL TIRE DEALER will KRAFT SYSTEM RECAP Worn Tires with the New GENERAL Truck Tire Tread of Your Choice

KRAFT SYSTEM RECAPPING
A GENERAL TIRE SERVICE

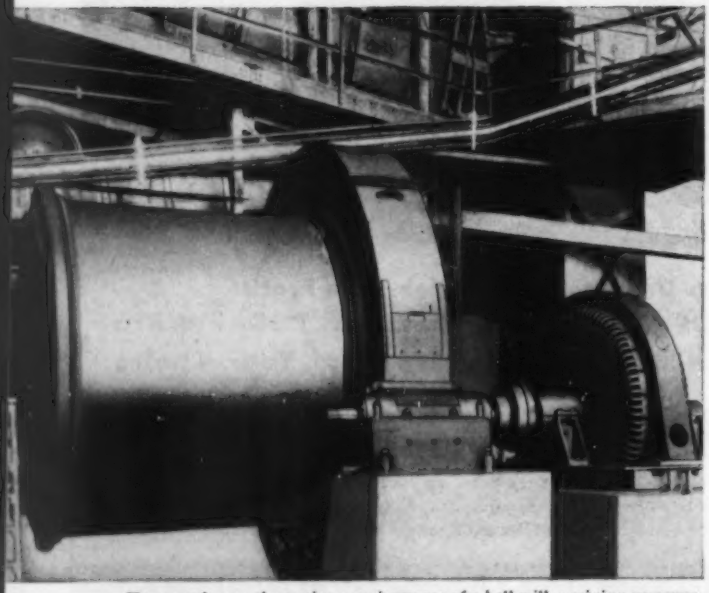
You're throwing away money when you throw away worn tires or accept an ordinary "adjustment" for them. Let your General Tire Dealer—a tire expert—restore worn tires with famous factory controlled Kraft System Recapping. You choose from the complete line of on and off-the-road new General Tire treads and he'll put that tread on your worn tire. He can do sectional repairs too. Get Kraft System Recapping—get more profit from every tire.

SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT

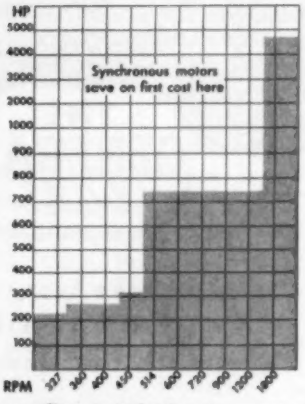


Savings in distribution equipment investment were made possible by selection of this General Electric 2500 hp synchronous motor for a municipal pumping station.

G-E Synchronous Motors

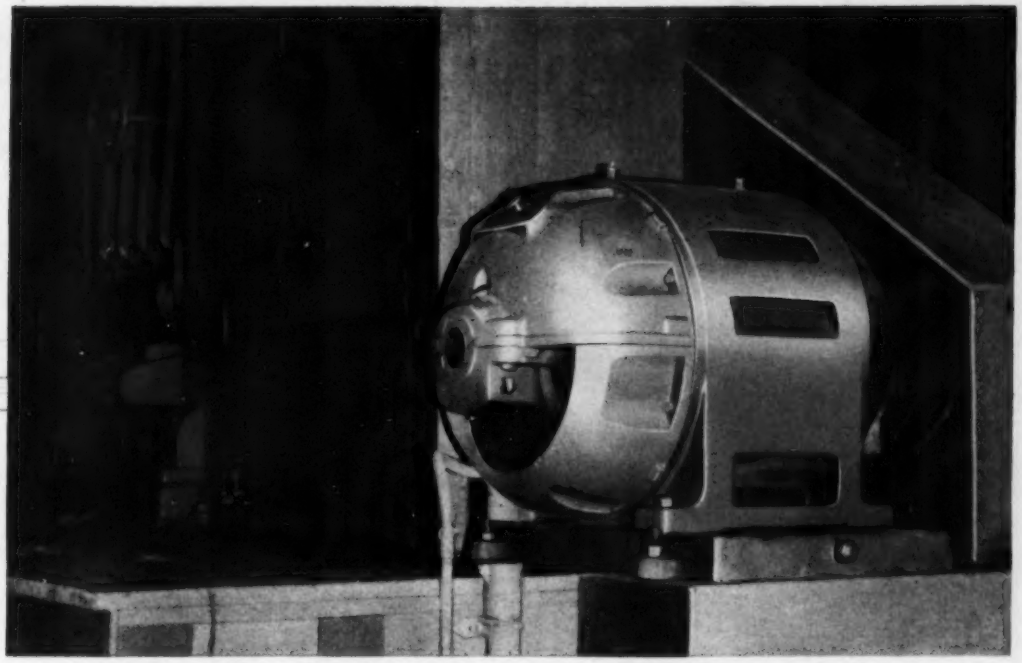


To meet the tough starting requirements of a ball mill, a mining company chose this G-E high-torque synchronous motor rated at 600 hp. Initial cost was low and the motor has given 20 years of dependable service.



Lower first cost of G-E synchronous motors is shown above. For applications in the white area, synchronous motors cost less than any other kind of motor. Calculations below show power savings on a typical 1000 hp, 514 rpm motor.

Gain in efficiency over other types of motors at same rating	**2.2%**
Hourly saving at power rate of $0.01 per/kwh	**$0.184**
Yearly saving (assuming constant operation)	**$1600.00**



Lower operating cost is the rule when General Electric Tri-Clad* synchronous motors are used with equipment such as this horizontal band re-saw, operating almost continuously at heavy loads.

Offer Double Savings

Lower First Costs, Lower Operating Costs Can Be Realized on Large, Constant-Speed Applications in Many Industries

Before you select a drive for a large equipment providing heavy and continuous service, be sure to investigate the economics of General Electric synchronous motors. On many applications such as pumps, compressors, fans, etc., outstanding savings are available.

LOWER FIRST COSTS

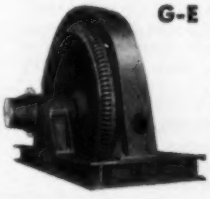
In most ratings where horsepower is equal to or greater than speed, the price tag on a synchronous motor with exciter and control is less than that of any other a-c motor with its control.

And, because a synchronous motor improves plant power factor, initial investment in distribution equipment frequently can be reduced. (The load which any new or expanded power system will carry is proportional to the plant's power factor.)

LOWER OPERATING COSTS

A synchronous motor usually has a higher full-load efficiency than any other type of motor, produces more work per dollar's worth of power consumed. Where loads are heavy and continuous, an advantage of from 0.5 to 3.0% in efficiency pays off.

Engineers with many years of field experience will tailor G-E synchronous motors and control to your job. Call in your General Electric representative—he'll be glad to discuss your particular application. And for more information on G-E synchronous motors, write for bulletins GEA-5332 (low-speed) or GEA-5426 (high-speed) to Section 770-26, *General Electric Company, Schenectady 5, N. Y.*



BE SURE TO SPECIFY G-E SYNCHRONOUS MOTORS

The result of more than 55 years experience in development, manufacture, and successful application, General Electric's line of synchronous motors is available in low speed and high speed types, engine-type and Tri-Clad* construction.

Numerous exclusive design and construction features promote long, dependable service. Get the full details!

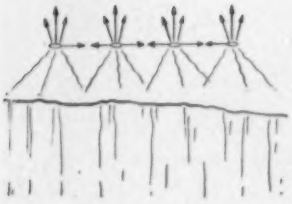
Reg. trademark U.S. Pat. Off.

GENERAL ELECTRIC

770-26

BLASTING CLUES from the ATLAS MACHINE-GUN CAMERA

Which Blast Gave the Best Breakage?



This blast is spectacular...

These geysers of wasted explosives energy were followed by a sharp air blast and wild flying rock. With holes spaced too closely and detonation from the top, the photo shows that initial action was upward and from hole to hole. As a result, the burden was quickly pushed away from the face before it could be fully stressed. This meant poor breakage . . . extra drilling and secondary shooting.

This blast is confined...

Here the holes were properly spaced and the alternate method of ROCKMASTER® milli-second delay blasting was used. Holes were detonated from the *bottom*. Since the initial force of the blast could not escape upward, there was practically no air blast. The one-two punch of ROCKMASTER produced excellent fragmentation by concentrating all the available explosives energy directly at the burden. The result was a well broken and well placed rock pile—boom height for easy digging.

See how the ROCKMASTER Blasting System can work for you. Send for the free 20-page book *Quarry Blasting the* ROCKMASTER *Way*, illustrating milli-second delay methods with machine-gun photos.

ATLAS EXPLOSIVES

"Everything for Blasting"

ATLAS POWDER COMPANY • WILMINGTON 99, DELAWARE

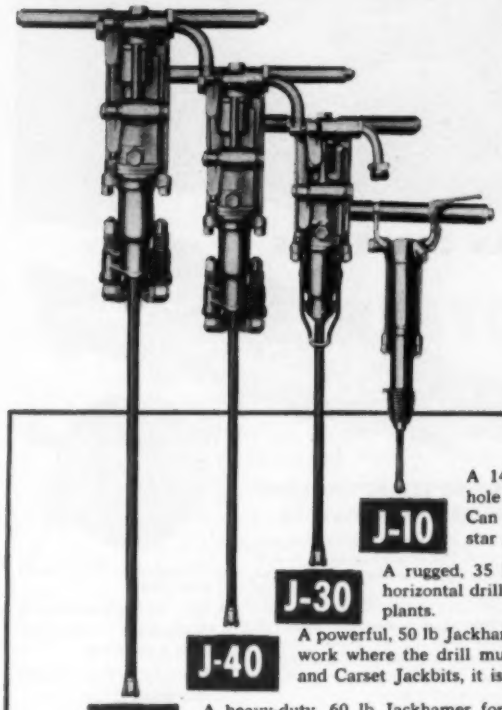
Offices in principal cities

There's an I-R JACKHAMER with

THE RIGHT POWER and THE RIGHT WEIGHT

for maximum drilling performance

ON ANY TYPE OF JOB



J-10 A 14 lb Utility Jackhamer, with automatic rotation and hole blowing—for a wide range of light-duty drilling jobs. Can be used with Ingersoll-Rand Carset drilling steels, star drills, chisels, gouges and moil points.

J-30 A rugged, 35 lb Jackhamer, ideally suited for horizontal or semi-horizontal drilling in mines, quarries, construction jobs and industrial plants.

J-40 A powerful, 50 lb Jackhamer for heavy-duty jobs in mines, excavation, and road work where the drill must be moved frequently. Used with the JL-4 Jackleg and Carset Jackbits, it is ideal for horizontal drilling.

J-50 A heavy-duty, 60 lb Jackhamer for vertical holes up to 20 feet deep—in shaft sinking, excavation, road building and quarry work.

CARSET JACKBITS greatly increase Jackhamer footage per man. One I-R Carset Jackbit is often all that is needed for two or three days of tough drilling.

750-5

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

ROCK DRILLS • COMPRESSORS
AIR TOOLS • CENTRIFUGAL PUMPS
TURBO BLOWERS • CONDENSERS
DIESELS • GAS ENGINES

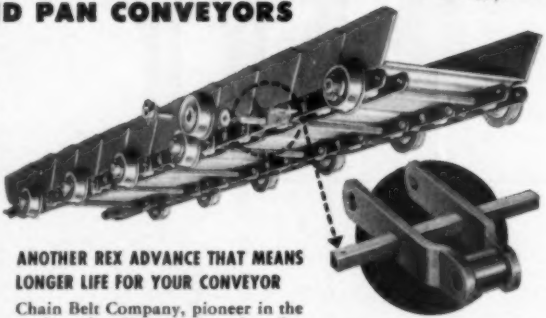
HOT STUFF

IS EASY WITH REX® APRON AND PAN CONVEYORS

When it comes to transporting hot bulk materials, there is virtually no upper limit to the temperatures the rugged, heavy-duty Rex Apron and Pan Conveyors can stand. Several now in operation are handling material up to 1900° F. Hot sinter, hot clinkers, hot lime, hot castings—these and many other "hot" items are all in a day's work with Rex Apron and Pan Conveyors.

Rex Conveyors will handle jobs where other types such as shaker conveyors and steel belts are useless. They have high capacity, require very little maintenance and operate at very low cost. Wearing parts are specially hardened. Chain is located away from high heat zone. Graphite impregnated grease is used throughout. When heat softens grease so that it flows, graphite remains to do lubricating job. With Rex, you are free from worry about premature failure and consequent costly down time or repairs.

For all the details write to Chain Belt Company, 4604 W. Greenfield Ave., Milwaukee 1, Wis.



ANOTHER REX ADVANCE THAT MEANS LONGER LIFE FOR YOUR CONVEYOR

Chain Belt Company, pioneer in the outboard roller construction for apron and pan conveyors, has now developed another new feature which can add years to the life of your conveyor—the square through rod. This exclusive Rex feature makes it impossible for the rod to rotate in the side plate. This means longer life for your conveyor *3 ways:*

1. **Through rod breakage is eliminated**
2. **Side bar failure due to enlargement of attachment holes is eliminated**
3. **Bushing life is greatly lengthened.**

CHAIN BELT REX COMPANY

Chain Belt COMPANY OF MILWAUKEE

Atlanta • Birmingham • Boston • Buffalo • Chicago • Cincinnati • Cleveland Dallas • Denver • Detroit • El Paso • Houston • Indianapolis • Jacksonville Kansas City • Los Angeles • Louisville • Midland, Texas • Milwaukee • Minneapolis New York • Philadelphia • Pittsburgh • Portland, Oregon • Springfield, Mass. • St. Louis • Salt Lake City • San Francisco • Seattle • Tulsa • Worcester

Distributors in all principal cities in the United States and abroad

FOR TOUGH TONNAGE

Homocord CONVEYOR BE

"We pay more for Homocord, but it costs us less!" • That's what users say . . . and they won't take any other conveyor belt. It makes sense, too. Where tonnage is toughest, Homocord has been known to outlast 2 or 3 ordinary conveyor belts. Figure cost of belts, plus cost of repeated installations, and Homocord proves the biggest bargain you can get • Its special construction—cushioned and flexible—absorbs impact that other belts can't take. Send for Bulletin 6906 and read about the Guillotine Test that proves our point • The same engineering goes into our hose, V-belts and flat belts. Get your Manhattan representative to show you.

R/M

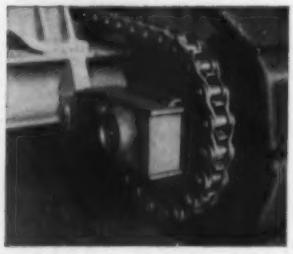
MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Packings • Brake Linings • Brake Blocks Clutch Facings • Asbestos Textiles • Sintered Metal Parts • Bowling Balls

Teaming up for bigger profit possibilities

CHECK THESE FEATURES
- √ Completely Convertible
- √ Long, Wide Crawlers
- √ Alloy Cast Bases
- √ Tandem Drums
- √ Power Booster Clutches
- √ High Line Speeds
- √ Wide-Vision Cab
- √ Power Dipper Trip
- √ Pin-Connected Boom



Crawler outboard bearing assembly

It isn't unusual to find two or more BAY CITY machines teaming up for bigger profit possibilities because so many BAY CITY owners have been *repeat buyers* for up to 35 years. And, it isn't unusual to find scores of BAY CITY shovels, cranes and draglines with records of 20 to 25 years of service. No single factor makes them so long-wearing . . . so long lasting. It is a combination of heavy-duty design and construction features that contribute to this extremely long life and satisfactory service.

The BAY CITY Balanced Design plus the many operating and maintenance advantages have been engineered with bigger value and dependable performance. We would like you to know the full story. Why not see your nearest BAY CITY dealer or write today for catalog. BAY CITY SHOVELS, INC., BAY CITY, MICHIGAN

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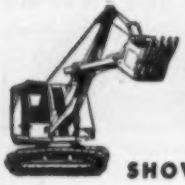
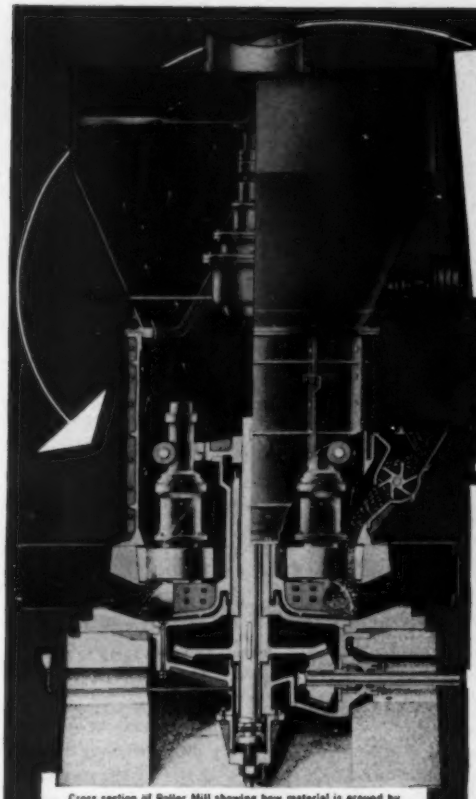


BAY CITY

SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS



Cross section of Roller Mill showing how material is ground by rolls rotating against bull ring, then air swept to separator which extracts fines and returns coarse material to mill for regrinding.

Increase Your Output Of FINE GRINDING

...with greater uniformity
...at lower cost

WILLIAMS *Roller Mills*

Limestone, burned and hydrated lime, clays, kaolin, talc, gypsum — whatever the material, if it has to be finely ground, there's a Williams Roller Mill to do it — faster, for stepped up production — more accurately and uniformly —and at far less cost!

Automatic and continuous in operation, the Williams also dries and grinds simultaneously. Instantly adjustable for finenesses of 20 to 400 mesh, even down to micron sizes. No built-up cushions of "fines" can impair grinding efficiency because the constant upward air current carries ground materials to the air separator which discharges *all* finished materials and returns *only* the oversize product to the mill for further grinding.

Feeding rate is automatic and self-adjusting, positive and simple in action—Anti-friction roller and ball bearings reduce down-time for lubrication, save oil and put more power into grinding—Take-up for wear is continuous and automatic—Rugged forgings, electric steel and alloy castings guard against wear and breakdowns—These and many other outstanding features have made Williams Roller Mills the standard for fine-grinding operations.

OTHER WILLIAMS EQUIPMENT

HAMMER MILLS

"Super-Slugger" models, with capacities up to 550 tons per hour, that reduce power shovel loaded rock to 1½", ¾" or agstone in one operation.

"Slugger" models, with capacities up to 100 tons per hour, that reduce "one-man" size stone to 1¼", ¾" or agricultural limestone in one operation.

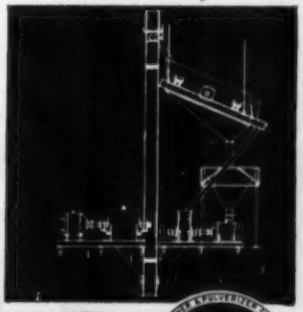
Other models, with capacities from 5 to 200 tons per hour, for reducing 4" to 6" stone to ¾", ½" or agricultural limestone in one operation.

IMPACT and DRIER MILLS
AIR SEPARATORS
VIBRATING SCREENS

Write For Catalog

WILLIAMS COMPLETE PLANTS

Backed by years of know-how and experience, Williams can build any type of ready-to-install plant to handle crushing, grinding, air separation, sifting, conveying and magnetic separation including storage bins and electrical equipment.



WILLIAMS PATENT CRUSHER & PULVERIZER CO.
802 ST. LOUIS AVE. ☆ ST. LOUIS 6, MO.

WILLIAMS

CRUSHERS GRINDERS SHREDDERS

OLDEST AND LARGEST MANUFACTURER OF HAMMER MILLS IN THE WORLD

A belt stacker designed by Jeffrey Engineers becomes an important part of a new-type storage system installed in Florida. Result: Continuous, dependable operation and accurate blending.

Saving: A unique system, the facilities of which prevent delay of railroad equipment and provide better service to customers by permitting quicker deliveries of more-accurately-blended phosphate rock.

How it works: From track hopper rock is fed at 600 to 800 T.P.H. on to a Jeffrey 36" belt conveyor, running up an 80-foot high Stacker which pivots (see photo) over a wide semicircle. Rock is dropped on storage piles consisting of various grades at different points. Grades are blended by proportioning through gates and reclaimed by other Jeffrey belts operating in tunnels under piles. Rock can be removed at controlled rate from any point in the pile, or at several points at once.

This is just one of the many Jeffrey-equipped jobs on which our engineers projected an ingenious application of the Belt Stacker. For applied engineering on those tough assignments — call on Jeffrey.

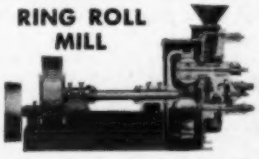
• Car Pullers	Bucket Elevators	Grizzlies	Crushers
Pulverizers	Magnetic Separators	Chains	Dryers
Coolers	Stackers	Conveyors	Packers

STURTEVANT AIR SEPARATORS

Produce Aggregates that meet Government Specifications

Sturtevant Air Separator in "closed circuit" with pulverizer. This combination increases tonnage and reduces costs in all types of industry.

RING ROLL MILL



Range 10 to 200 mesh. Use this mill in closed circuit with Sturtevant Air Separators.

On dam projects throughout the country, Sturtevant Air Separators are helping contractors meet U. S. Corps of Engineers specifications for proper analysis of aggregates. Here's how — Sturtevant Air Separators de-dust and remove the fine fraction according to the mesh required. Dry or damp sand can be handled in any tonnage desired in ranges from 30 mesh and finer to eliminate screen in the production of intermediate sizes.

The de-dusted sand of proper mesh is then inter-blended with the screened sand or aggregates in the proper proportions providing aggregates that meet specifications.

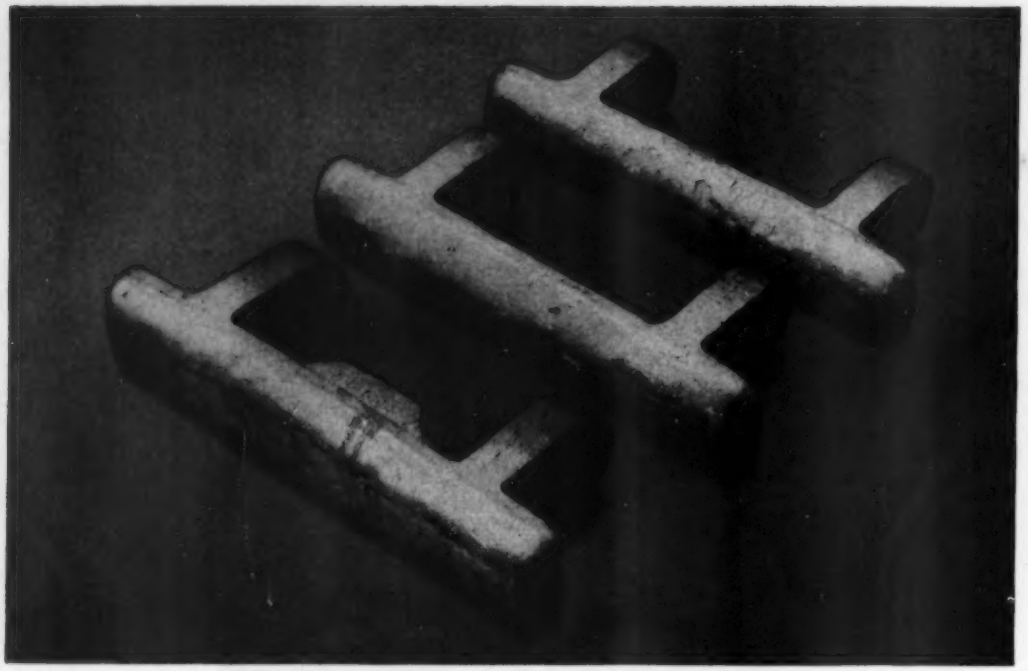
Sturtevant Air Separators are fast and accurate. They increase production of aggregates, cut production costs.

Investigate Sturtevant Air Separators for your jobs. Write for details, today.

STURTEVANT MILL COMPANY

104 CLAYTON STREET, BOSTON 22, MASSACHUSETTS

Designers and Manufacturers of: CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS MECHANICAL DRYS and EXCAVATORS • ELEVATORS • MIXERS



LIMESTONE TONNAGE INCREASED 5 TIMES
by Rebuilding Mill Hammers with Coast Metals Hard-Facing

CM-115 hard-facing welding rod increases hammer life 5 to 1 at 1/3 their cost

These three saddle type reversible manganese steel hammers are used in an Eagle Hammer Mill at the Tarbox McCall Stone Company, Findlay, Ohio to crush dolomitic limestone. Production capacity of this mill is 35 tons per hour. The hammers illustrated have just been removed from the mill for their fourth refacing.

Prior to hard-facing with CM-115, a new set of hammers, costing $23.50 each, produced a total of 1,200 tons of stone. This was accomplished by using both sides of the reversible faces. The average grinding efficiency of the rapidly wearing hammers was calculated at 20 tons per hour.

This set of worn hammers was rebuilt with 5½ lbs. of Coast Metals 115 hard-facing welding rod at a total cost of $20.05, including material, welding costs and installation. Hard-facing was applied to one edge of the hammers only.

They were returned to service and produced 6,000 tons of stone at full capacity of 35 tons per hour. This performance is repeated an indefinite number of times, and with each hard-facing, the rebuilt hammers produce 5 times the tonnage at less than ⅓ the cost.

Holding down production and maintenance costs has never been so important as it is today. So don't *replace—reface* with CM specialized welding rods. You'll not only keep production running smoothly, but save money. We shall be glad to make recommendations based upon your particular needs.

COAST METALS, Inc.
Little Ferry, N. J.
COAST METALS (CANADA), LTD., Hamilton, Ontario

PRODUCERS OF SPECIAL HARD-FACING ALLOYS FOR THE ROCK PRODUCTS INDUSTRY

Ford BIG JOBS feature an overhead valve, LOW-FRICTION Cargo King V-8 —145 h.p. (F-7) and 155 h.p. (F-8).

FORD TRUCK ECONOMY RUN

WISCONSIN
Report No. 11312

"I haul loads averaging 11 tons, yet my running costs are

Only 5 1/10¢ a mile"

says Ed Schuster, Green Bay, Wisconsin

"I operate a number of trucks," says Mr. Schuster, "and our Ford tandem conversions have done a remarkable job. We have lots of power and gas mileage is above average. We are well satisfied." This F-7 with special dual drive axle traveled 14,494 miles in the Economy Run. Costs for gas, oil and maintenance were $738.87, or only 5.1 cents a mile!

Now! Up to 14% more Gas Savings

Two years of testing show how well the new Ford LOW-FRICTION engines perform under the most severe conditions. They passed scores of 100-hour "destruction" tests. One model alone ran as much as 50,000 dynamometer test-hours, over 500,000 vehicle test-miles.

and more Speed Hauling power, too!

New LOW-FRICTION design in 3 new Ford Truck high-compression engines cuts friction loss!

Ford's LOW-FRICTION design cuts friction power loss up to 30%! A new Short-Stroke principle reduces piston travel up to 20%—makes for longer engine life. New OVERHEAD VALVES give more efficient fuel-feeding. New HIGH-COMPRESSION gives extra power on regular grade gasoline.

You can get new LOW-FRICTION design in 3 of the 5 great Ford Truck engines for '52. And you get more power than ever in the famous 239 cu. in. truck V-8 or the 254 cu. in. BIG SIX. See what's new in trucks at your Ford Dealer's!

DON'T GUESS! See how little it can cost to run a truck in your kind of work. See the cost figures in this 144-page book showing results from the 50-million-mile Ford Truck Economy Run. See it at your Ford Dealer's!

Availability of equipment, accessories and trim as illustrated is dependent on material supply conditions!

FORD TRUCKING COSTS LESS
and FORD TRUCKS LAST LONGER!

Using latest registration data on 8,069,000 trucks, life insurance experts prove Ford Trucks last longer!

FREE! MAIL THIS COUPON NOW!

FORD Division of FORD MOTOR COMPANY
3253 Schaefer Road, Dearborn, Michigan

Please send me without charge or obligation, complete details on the new Ford Trucks for '52 and the five great Ford Truck engines!

FULL LINE ☐ HEAVY-DUTY MODELS ☐
LIGHT MODELS ☐ EXTRA HEAVY-DUTY MODELS ☐

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(PLEASE PRINT PLAINLY)

Address_____

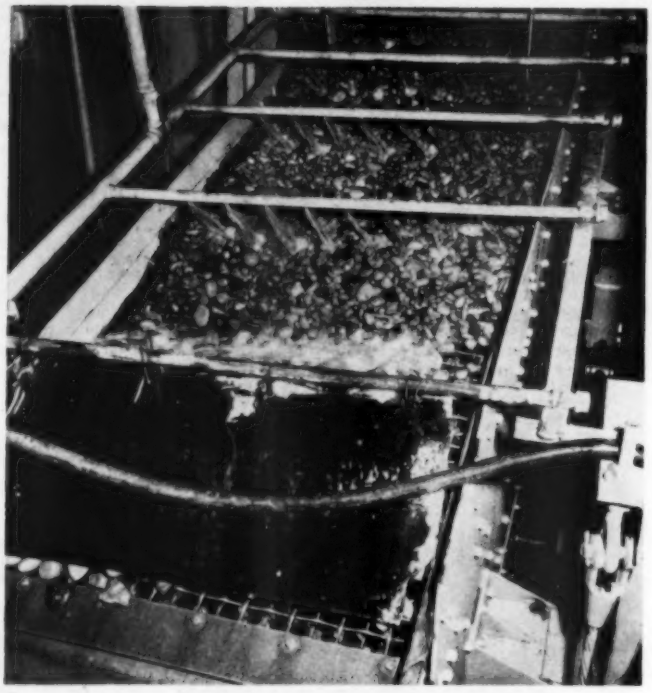
City_____ State_____

Check here if student ☐

THIS BOAT "GOES FISHING" FOR LAKE GRAVEL... AND

SECO VIBRATING SCREENS SIZE IT FOR MARKET

When Gravel Products Corporation's S. S. Niagara makes one of its daily trips from Buffalo to Erie, Pa. into Lake Erie, it's out for a "big catch" of the finest sand and gravel to be found in this area. Instead of rods and nets however, this 270 foot sea-going craft is equipped with special equipment that draws the sand and gravel up from the lake floor at depths up to 80 feet. Special equipment separates the sand from the gravel and when the Niagara has a "catch" of 2,400 tons it heads homeward.



SECO
TRUE CIRCULAR ACTION
VIBRATING SCREENS

Put a dependable SECO on your screening job!

Over 300 models for screening everything from ag-lime to rip-rap.

SEND FOR CATALOG NO. 203 TODAY!

SCREEN EQUIPMENT CO., INC.
1750 Walden Avenue, Buffalo 25, New York
In Canada: United Steel Corp., Toronto, Ontario

Gravel Products Corporation's products are well known for quality throughout the Niagara Frontier and its yearly production runs into almost astronomical figures. *But even the finest gravel* must be accurately sized for complete customer satisfaction. That's why Gravel Products Corporation uses Seco vibrating screens exclusively. In the words of Mr. Ernest Hammond, "On this particular 3 deck Seco, we make four finished sizes and simultaneously re-wash the gravel at the rate of 200 tons per hour (N. Y. State 1A's, 1's, 2's, and 3A's). For accuracy and dependable performance without excessive maintenance, we're absolutely sold on Seco. Another of our Seco's has served us faithfully for 12 years."

Your Management wants to know...

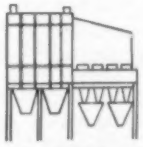
How efficient dust recovery can mean new profits

In every industry, from rock products to food to steel, Buell engineers, working with plant engineers, have established an enviable 18-year record of turning unnecessary dust losses into substantial new profits. What's more, Buell Dust Recovery Systems uncover, for all American industry, these additional important advantages: improved product quality, smoother plant-community relations and higher employee morale.

To take advantage of Buell's background and experience in the highly specialized science of dust recovery, ask for further information about Buell's **3 basic systems** of dust collection. See how they can help you turn dust into dollars. Send for Buell's new, informative bulletin titled, "The Collection and Recovery of Industrial Dusts." Buell Engineering Co., Dept. 18-I, 70 Pine Street, New York 5, New York.

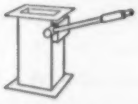
VAN TONGEREN CYCLONE

'SF' ELECTRIC PRECIPITATOR



PRECIPITATOR—CYCLONE COMBINATION

TYPE 'LR' COLLECTOR



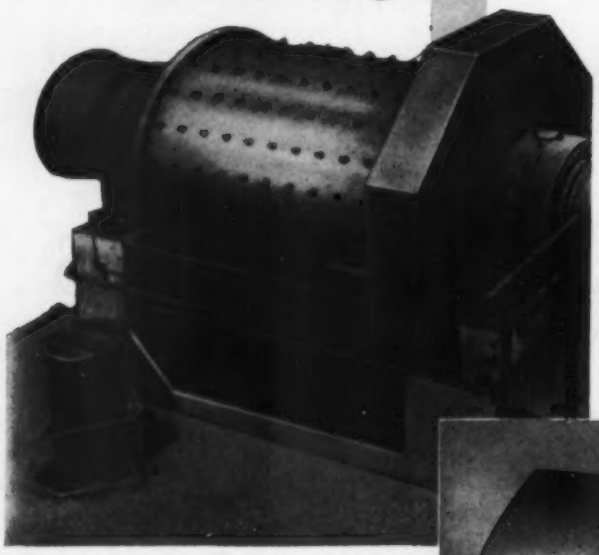
DUST HOPPER VALVES

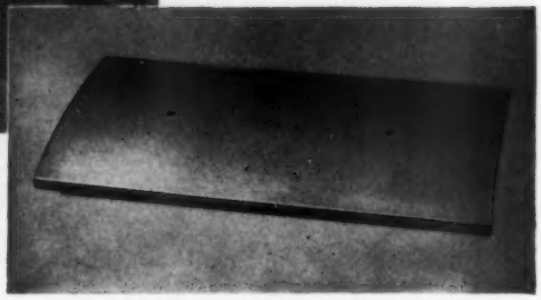
ELECTRIC CYCLONIC

buell

ENGINEERED EFFICIENCY IN DUST RECOVERY

rod mill liners of ABK METAL save money by providing extra life and continuous production





A large cement company in the Middle West had been using white iron liners in their rod mills—liners that lasted from three to five months in service.

Searching for a highly abrasion resistant material, they placed an order with American Brake Shoe Company, in 1947, for liners of ABK Metal and installed them in the same year. These and subsequently ordered ABK Metal liners are *still in service* at this particular plant. The reduction in replacement costs and the increased production effected substantial savings. Approximately 300 tons of liners are now in use in their mills.

If you are looking for an abrasion resistant metal, it will pay you to consider

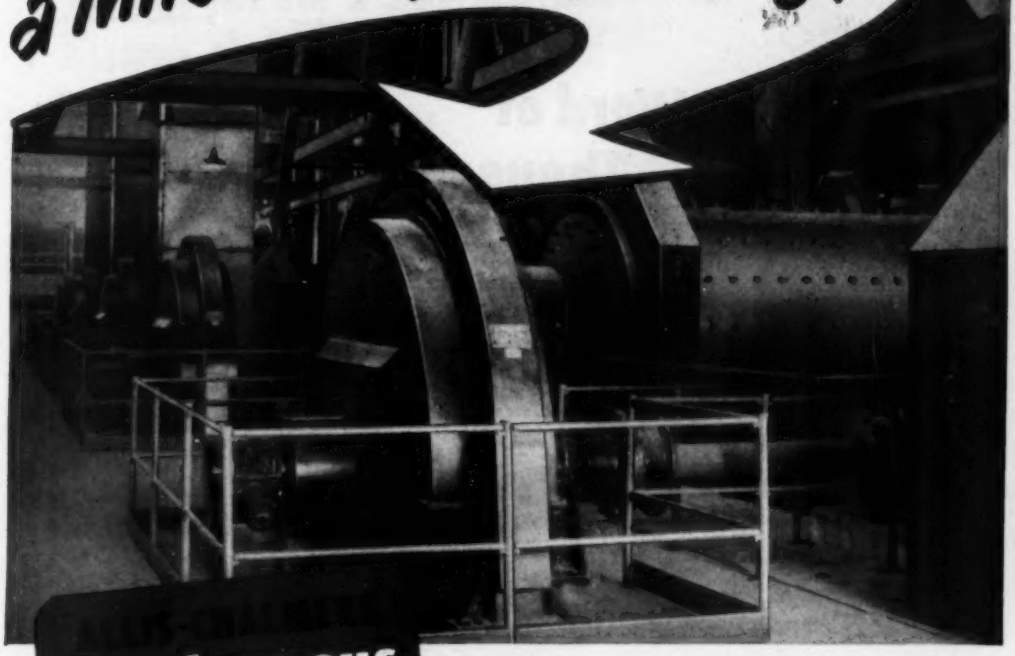
ABK METAL *for better protection against abrasion*

AMERICAN **Brake Shoe** COMPANY

BRAKE SHOE AND CASTINGS DIVISION

230 Park Avenue, New York 17, N. Y.

PRODUCTION SPEED: a Mile of Highway a Day!



Synchronous MOTORS

Here's the Explanation: two 700-hp motors + three 800-hp motors × one day = preliminary and finish grinding of 4200 bbl of Portland cement—enough to pave one mile of 8-inch thick, 22-ft wide concrete highway.

THAT'S THE MOTOR COMBINATION used by Lone Star Cement in their new plant at Sweetwater, Texas. And the Texas installation, pictured above, duplicates the Lone Star plant placed in operation near Roanoke, Virginia, in June, 1951. Each of these 4200-bbl-per-day plants is equipped with both Allis-Chalmers motors and processing machinery.

DRIP-PROOF MOTORS

Both the 700-hp preliminator motors (foreground) and the 800-hp *Compeb* mill motors (background) have special drip covers to assure long, trouble-free operation. Each motor has liberally proportioned bearings, securely supported field coils, precisely processed insulation . . . and many other features that have earned Allis-Chalmers motors their reputation for reliability.

A-3663

Compeb is an Allis-Chalmers trademark.

WRITE FOR BULLETIN

Construction details and ratings available in large, low-speed, pedestal-bearing synchronous motors are given in Bulletin 05B7648. Ask your nearby A-C representative for a copy, or write to Allis-Chalmers, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

Loading out scrap material

Bulldozing

Industrial material handling

Backfilling foundations

Take the Word of ...Thousands

Don't just take our word for the real, day-to-day usefulness of the Oliver "OC-3". Take the proof offered by the *thousands* of users . . . the *thousands* of uses . . . of this powerful little tractor. Just ask any owner what he thinks of his "OC-3". In the more than 12 years that the "OC-3" and its predecessor, the "HG", have been in production, they have built a reputation for user acceptance that's unequaled in their class. Proof of this is the fact that it's mighty hard to get a used "OC-3". Users just don't often sell their "OC-3" tractors.

With an "OC-3" and its broad line of matched equipment . . . bulldozer, trailbuilder, front end loader, lifting fork, sidewalk snow plow, hydraulic drawbar, winch, logging kits, and many others . . . you can perform all sorts of useful tasks *every day.*

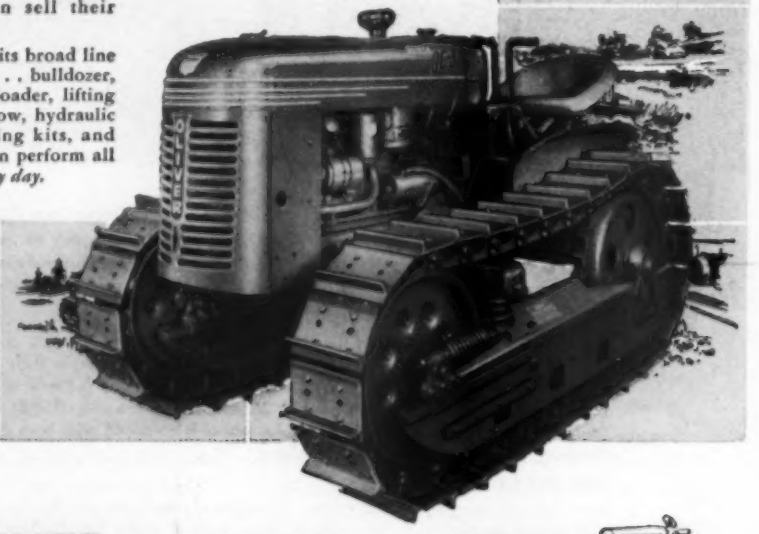
The "OC-3" has plenty of power to handle all those jobs with ease . . . a full 22 drawbar h.p. It's ruggedly built to keep maintenance and operating costs down.

Why not have your Oliver Industrial Distributor give you all the facts on the "OC-3", the lowest priced industrial crawler tractor built. Call him or write direct to The Oliver Corporation, Industrial Division, 19300 Euclid Avenue, Cleveland 17, Ohio.

Sidewalk snow plowing

Loading out topsoil

Winch operations

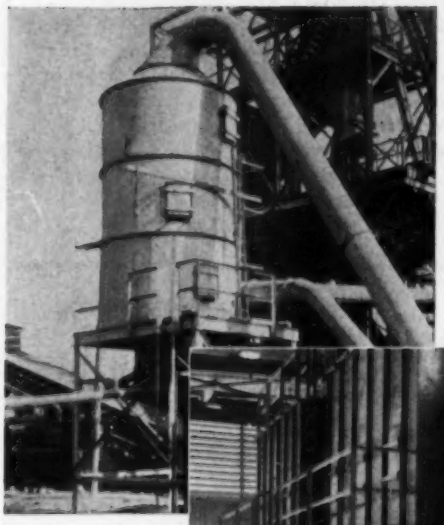


THE **OLIVER** CORPORATION

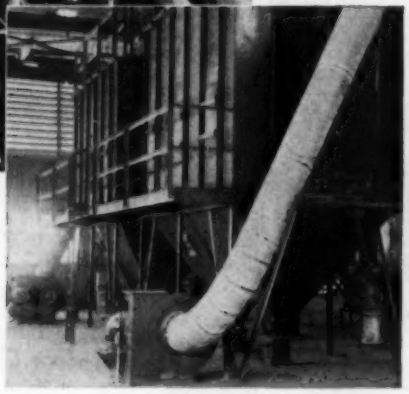
a complete line of industrial wheel and crawler tractors

Norblo

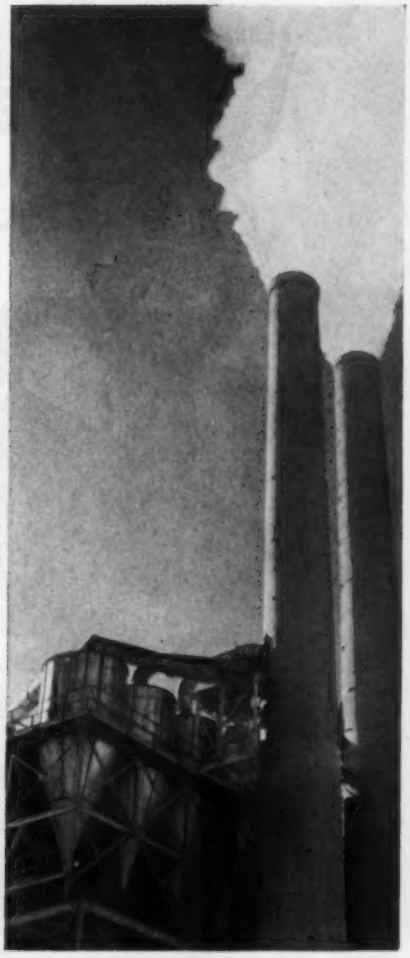
Engineered Dust and Fume Collection . . .



Hydraulic



Automatic Bag Type



Centrifugal

Whatever your need for dust or fume control, Norblo builds rugged, efficient equipment in Centrifugal, Hydraulic and Bag type collecting systems. These three types, frequently used in certain combinations, provide economical dependable control as required in smelting, rock products, chemical, milling and processing fields. Norblo Systems make outstanding records for high recovery with low operating and maintenance costs. Profit by Norblo 30 years' experience in heavy duty dust collection and Norblo development of these basic types of equipment. For good advice on dust or fume problems, consult Norblo.

THE NORTHERN BLOWER COMPANY

Engineered Dust Collection Systems for All Industries

6407 BARBERTON AVE. • CLEVELAND 2, OHIO

WELLMAN *Williams Type*

MORE YARDAGE PER DAY

Dragline, Clamshell, Custom-Built Buckets Stone and Wood Grabs

● Elimination of excess materials and careful weight distribution permit rapid, rhythmic operation of Wellman Dragline Buckets. Operators can cover a wider digging radius with this streamlined bucket.

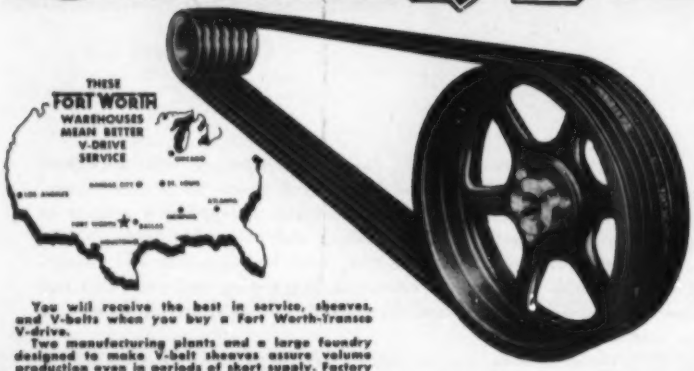
Built of special alloy steel, using strong welded design, Wellman buckets provide strength and stamina for long-term economy. Perforated designs also available. You'll do better with Wellman.

Want Facts? Write for free descriptive bulletins

THE WELLMAN ENGINEERING COMPANY
7014 Central Avenue
Cleveland 4, Ohio

SEE FOR YOURSELF—Next time try a

FORT WORTH TRANSCO QD SHEAVE



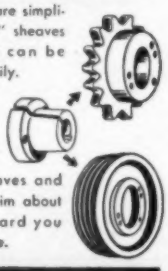
You will receive the best in service, sheaves, and V-belts when you buy a Fort Worth-Transco V-drive.

Two manufacturing plants and a large foundry designed to make V-belt sheaves assure volume production even in periods of short supply. Factory warehouses supplemented by numerous stocking distributors provide quick delivery on stock sizes.

The advantages of "QD" construction are many. We will be pleased to explain them to you at any time.

"QD" HUB ALSO FITS NEW FORT WORTH "QD" Roller Chain Sprocket

Speed changes are simplified and "spare" sheaves and sprockets can be carried more easily.



If your favorite distributor doesn't stock the Fort Worth QD line — both sheaves and sprockets — tell him about them. He'll reward you with better service.

Write for name of nearest distributor and for descriptive catalogs on "QD" Sprockets and Sheaves.

WAREHOUSES:
CHICAGO
LOS ANGELES
ST. LOUIS
KANSAS CITY
MEMPHIS
CINCINNATI
NEW YORK
HOUSTON
ATLANTA

FORT WORTH STEEL AND MACHINERY CO
Dept. 259 — 3600 McCart Street FORT WORTH, TEXAS

OTHER FORT WORTH PRODUCTS
ROLLER CHAIN
SPROCKETS
SCREW CONVEYORS
and ACCESSORIES
SCREW ELEVATORS
INDUSTRIAL FANS

You Can't Argue With Experience!

AFTER 2 YEARS USE OF THOMAS DURABLE DREDGE PUMP Joe McMaken REPORTS

DREDGING · SUBMARINE RIVER CROSSINGS · LEVEES · REVETMENTS · PIPELINE CONSTRUCTION

MISSOURI VALLEY DREDGING CO.
RIVER CONTRACTORS AND PIPELINERS
TWO TWENTY TWO WILLIAM STREET
OMAHA 8, NEBRASKA
PHONE AT 0272

July 29, 1952

Thomas Foundries, Inc.
P. O. Box 1111
Birmingham 1, Alabama

Gentlemen:

Our THOMAS DURABLE DREDGE PUMP after almost 2 years of pumping has not required any repairs major or minor. This pump is still in operation and shows very little wear. With the low cost of maintenance and repair we repeated our order for another 14" suction - 12" discharge THOMAS DURABLE DREDGE PUMP.

With these two dredge pumps operating our production has increased, costs have decreased and we are able to complete more pipeline river crossings in a year than ever before.

We still have 7 cast iron dredge pumps in the 8", 10" and 12" series. You can be sure that these pumps will be replaced with the THOMAS DURABLE DREDGE PUMP.

Yours very truly,
MISSOURI VALLEY DREDGING CO.
Joe D. McMaken
Joe D. McMaken, President

INCREASED PRODUCTION, DECREASED COSTS

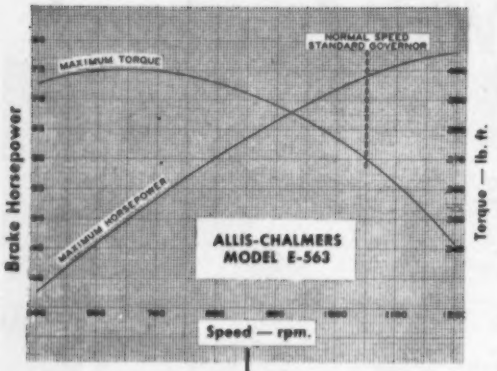
Some people are inclined to discount advertising claims and salesman's statements. But you can't discount the words of a reputable product user. He is not interested in selling you anything. From what you do, he has nothing to gain or lose. He is merely and voluntarily passing along to you what he discovered by experience. *He knows what he is talking about!*

Now, Mr. McMaken joins the growing list of operators who say that their Thomas Durable Dredge Pumps last several times longer than conventional type pumps, decrease shutdown troubles, lower pumping costs, handle more material.

You'll understand why when you learn how Thomas Pumps are made different from other pumps. Different in design details . . . different in material. For complete information write THOMAS FOUNDRIES, INC., Post Office Box 1111, Birmingham 1, Alabama.

Thomas Pump used on

Thomas Pump used on



GRAPHIC PROOF

that A-C Power Units are Tailor-made for Crushing, Hoisting, other Sudden Overload Jobs

HIGH TORQUE CHARACTERISTICS — Above curve shows how A-C engines build up necessary torque quickly even when throttled way down to handle the sudden overloads so common to crushing and allied service.

SUPER-SENSITIVE GOVERNOR — helps lick overloads before they get started. One crusher operator's comment: "That A-C engine seems to 'see' big rocks topple in . . . it's all ready when they hit the jaws."

REAL DUST PROTECTION — Oil bath type air cleaners are standard on Allis-Chalmers power units, as well as fuel and lube oil filters. In addition, oil seals protect crankshaft; water pump is self-sealing.

MEDIUM SPEED, HEAVY-DUTY DESIGN — assures steady flow of power, extra long life at lowest cost. You also save on first cost because these engines are mass-produced along with tractor engines by the thousands.

A-C power units operate economically on gasoline, natural gas or low grade fuel, and there are accessories to fit a wide variety of applications. Our power engineers will gladly help you select the proper unit for your job.

UP TO 99%?

Research Corp. Engineer — Yes sir, we are now in a position to offer our equipment and experience gained in other industries to cement plants for the removal of dust from cement plant furnace gases.
This experience enables us to guarantee any efficiency up to 99% depending on your individual requirements.

Plant Manager — What about draft loss?

Research Corp. Engineer — It's extremely low —only a few tenths of an inch of water.

Plant Manager — Do you actually guarantee performance?

Research Corp. Engineer — Absolutely. And you can depend upon Research Corporation because of our wide experience in the field of electrical precipitation. That's your yardstick of performance.

For more data on Research-installed Cottrells, send for Bulletin 500

RC 126

RESEARCH CORPORATION

405 Lexington Avenue, New York 17, N.Y.
122 South Michigan Avenue, Chicago 3, Illinois

THE CONCRETE MANUFACTURER

A SPECIAL SECTION OF

Get on the Map—

with a GOCORP

You'll be in good company. As you can see, GOCORP in three short years has effectively invaded the most competitive areas in the concrete products industry.

There must be reasons why these successful operators have modernized with a GOCORP. It boils down to this—a GOCORP makes better blocks at a lower unit cost. Also, these operators know that their GOCORP machines are old enough to be proven but so new that the buyer is protected against early obsolescence.

Why not write us for locations of plants near you? GOCORP owners will be happy to have you see their machines in operation and tell you of their experience.

GO CORP
ADRIAN-MICH.

[HERE'S WHY THEY ASK FOR 'INCOR']

THE KANSAS CITY STAR. MAIN EDITION

KANSAS CITY, JUNE 1, 1947—SATURDAY—16 PAGES. PRICE 3 CENTS

A BIG DOCK BLAZE

DEFENSE AT TOP

A Great Newspaper Scores Another 'BEAT'

KANSAS CITY STAR SOLVES PROBLEM OF HANDLING NEWSPRINT —'INCOR' SPEEDS CONSTRUCTION OF UNDER-STREET TUNNEL

● Many of the nation's metropolitan newspapers haul truckload after truckload of newsprint over busy city streets. But not The Kansas City Star. This great paper moves the 70,000 tons it uses each year direct from railroad car to press, on what is said to be the only conveyor line of its kind in use today.

A month's paper supply is stored in a fine, new, fire-safe warehouse, concreted throughout with Lone Star Cement. And under busy Grand Ave., a new tunnel connects the warehouse with The Star's main building.

Building the tunnel without tying up heavy Grand Avenue traffic was a problem. The designers and builders solved it in the now-characteristic American way—the way builders the country over score a "beat" when time, traffic, weather, and form costs pose a problem—that is, by using 'Incor,'* America's FIRST high early strength portland cement. Result, earlier completion, less job overhead, minimum traffic interference.

*Reg. U.S. Pat. Off.

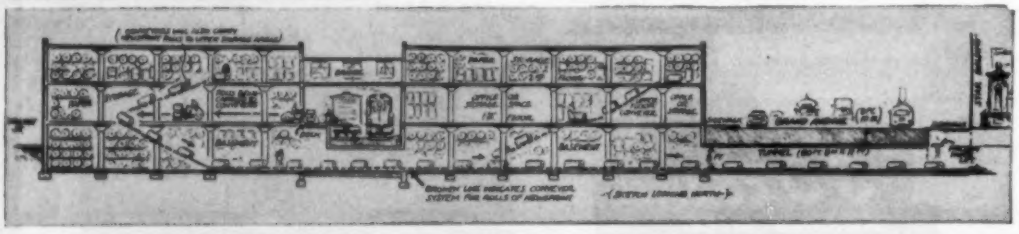
THE KANSAS CITY STAR
Paper Warehouse and Tunnel

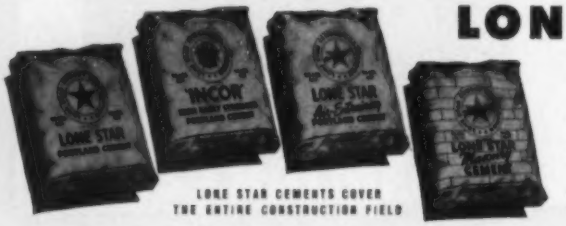
Architects:
NEVILLE, SHARP & SIMON

Contractor:
COLLINS CONSTRUCTION COMPANY

Ready-mix 'Incor' Concrete:
STEWART SAND & MATERIAL COMPANY
—all of Kansas City, Mo.

Sketch below shows how The Star handles newsprint, from railroad car to storage in new warehouse, thence by conveyor under railroad tracks and tunnel under Grand Avenue to presses in main building.





LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD

LONE STAR CEMENT CORPORATION

Offices: ABILENE, TEX. • ALBANY, N. Y. • BETHLEHEM, PA. • BIRMINGHAM
BOSTON • CHICAGO • DALLAS • HOUSTON • INDIANAPOLIS
KANSAS CITY, MO. • NEW ORLEANS • NEW YORK • NORFOLK
PHILADELPHIA • RICHMOND • ST. LOUIS • WASHINGTON, D. C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 17 MODERN MILLS, 125,600,000 SACKS ANNUAL CAPACITY

The CONCRETE MANUFACTURER September 1952

FISCAL NIGHTMARE

ACCORDING to figures recently published by the Chamber of Commerce of the United States, the 1953 federal budget of $79,000,000,000 is greater than all the incomes of all the people who live west of the Mississippi River. Whether you live east or west of Ol' Man River, your government's current spree of drunken spending is going to have a direct, unyielding and painful effect upon your life long after the fiscal year 1953 has been reduced to dry statistics.

A budget of $79,000,000,000 is in itself a frightening thing to contemplate. But far more frightening than the proposed expenditure is the cast-iron certainty that current revenues will fall woefully short of footing the bill. Revenues for fiscal 1953 are estimated at about $68,700,000,000, or some $10,300,000,000 less than estimated expenditures. Somewhere in the history books it will be recorded that the most prosperous nation on earth, in one of its greatest eras of prosperity, could meet only about 87 percent of its current expenditures out of current revenues.

It should be abundantly clear, at least to those citizens who are inclined to base their judgments upon evidence, that the federal government is in the unhappy predicament of the dope addict or the alcoholic who can no longer resist the urge to escape just once more into that never-never land which has no tomorrow. After 20 years of deficit financing our government appears to be hopelessly addicted to the practice, and exhibits not even the slightest impulse to operate within its means.

At the moment our national debt amounts to approximately $260,000,000,000—considerably more than twice as much as all the money now in circulation. The average family's share of this staggering debt is $5,860. Every child born today inherits a share of that indebtedness amounting to about $1,500. Interest alone totals approximately $6,000,000,000 annually, or nearly $140 per family per year.

"Don't worry about it," say the cosmic experts. "We just owe it to ourselves!" What they actually mean, of course, is that future generations, rather than our own, will have to cope with the problem. At best it amounts to a slight rephrasing of the "after-us-the-deluge" philosophy of government.

We have no means of judging the urgency of the problems which our government is attempting to solve by spending the substance of future generations of Americans. It is hard to forget, however, that many of those same problems are the direct consequence of incredible misjudgment and irresponsibility on the part of the very governmental officials who now seek to repair matters by the expenditure of billions of dollars. Nothing in their past history suggests that they have even the inclination, let alone the capacity, to do a competent job.

There is no easy solution to the dilemma in which we find ourselves. The job of restoring some degree of fiscal sanity in our government calls for high courage, tremendous determination, and the sort of moral fiber which our present leaders clearly believe we no longer possess. No man can say whether or not we are equal to the task, but certainly the effort must be made promptly if there is to be any hope of success.

William M. Avery

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news of the concrete industries

Final Judgment Given By U. S. District Court In Besser Mfg. Co. Case

According to information received from the Besser Manufacturing Company, Alpena, Mich., the United States District Court for the Eastern District of Michigan, Southern Division, in a recent action directed the company within 30 days from the entry of the final judgment in a lawsuit involving Besser and others to notify its lessees of three optional courses of action, as follows:

They may terminate the lease agreement at any time prior to January 1, 1953; they may continue under the terms of the lease; or they may enter into a mutually satisfactory agreement to purchase the machine or machines leased (and the accessory equipment used).

Besser lessees under the terms of this directive must indicate their individual choices in writing on or before October 1, 1952.

The court further directed the company to sell repair parts to its lessees or purchasers at "reasonable, uniform, and non-discriminatory prices, terms, and conditions of sale".

The final judgment was affirmed by the United States Supreme Court.

Universal Concrete Products Joins Texas Industries, Inc.

Latest acquisition of Texas Industries, Inc., Dallas, is the Universal Concrete Products Company of San Antonio, bringing to 14 the number of plants operated by the former. In May of this year Texas Industries announced the purchase of the Central Culvert Corporation of Shreveport, Monroe, and Alexandria, La.

Universal manufactures lightweight concrete building units and concrete culverts. Production is estimated at about 400,000 lightweight precast concrete blocks per month. Charles Leake, who has been a working partner of Universal, will continue as general manager. No changes in key personnel are contemplated.

Texas Industries and its subsidiaries now are said to constitute the largest organization making lightweight concrete products in the Southwest. The combine produces 500,000 cu. yd. of expanded clay and shale aggregate products annually, in addition to culverts and special items and more than 15,000,000 8- by 8- by 16-in. blocks.

H. A. Lee Named President of Anchor Concrete Products

The election of Harvey A. Lee as vice-president of Anchor Concrete Products Inc., Buffalo, N. Y., was announced by Frederick W. Reinhold, president. Mr. Lee will continue to serve as secretary. In his new post, he will be in charge of promotion and sales of all products produced by Anchor.

Mr. Lee started with Anchor in 1937, and was elected secretary and a director in 1938.

Form New Indiana Company To Make Prestressed Beams

Formation of the Indiana Prestressed Concrete Company, Inc., a subsidiary of the Indiana Limestone Company, Inc., was announced recently by H. H. Sakel, president of the latter firm.

It was stated that the new concern will produce prestressed concrete bridge deck beams at the parent company's Blue Hole mill. Phil Balcomb was named general manager of the new plant.

Coming Events

January 25-29, 1953—Cleveland. 33rd annual convention and exhibit, National Concrete Masonry Association, Public Auditorium.

February 2 and 3, 1953—Toronto, Canada. Fourth annual convention, National Concrete Products Association (Canada). King Edward Hotel.

February 23-26, 1953—San Francisco. 23rd annual convention, National Ready Mixed Concrete Association. Hotel Fairmont.

J. P. Sheehan, Well Known In Products Industry, Killed in Accident

John P. Sheehan

John P. Sheehan, chairman of the board of the Atlas Lime Company, El Paso, Tex., was victim of a fatal automobile accident on July 22 when his car was struck by a train.

Mr. Sheehan, who was well known in the concrete products industry and as a member of the board of directors, National Concrete Masonry Association, had been inspecting some construction on the Atlas Lime property just before the accident. His car, according to witnesses, had been parked close to the railroad right-of-way, and rolled onto the tracks in the path of the train. He was thrown from the car into a drainage ditch. Although Mr. Sheehan had been in poor health in recent years, he had recovered sufficiently to return to his duties at the Atlas Lime plant. He was 64 years old.

Salt Lake City Block Plant Heavily Damaged by Fire

Plant facilities and equipment of William H. Prince and Sons, Inc., Salt Lake City, Utah, were damaged to the extent of $70,000 to $100,000 in a recent fire. Origin of the blaze was not known.

Valuable equipment for the production of cinder block was badly damaged, although Mr. Prince stated that some pieces could be restored. The three-story structure was partially burned; all the elevators were destroyed; and many auxiliaries to the heavy machinery were either damaged or entirely destroyed.

The firm purchased the plant in 1945, according to Mr. Prince, who stated that he had spent $300,000 since that time on an expansion program. In addition to the fire loss, the company faces the additional financial loss entailed by its inability to fill large orders now due for delivery.

New Owners Take Over Active Management of Lith-I-Bar Company

Announcement has been made of a change of ownership in the Lith-I-Bar Company, Holland, Mich., makers of concrete joist and concrete block machines. Mrs. Frank E. Milewski, widow

C. R. Sligh Jr.

O. W. Lowry

of the founder, has sold her controlling interest in the firm to O. W. Lowry and Charles R. Sligh Jr., nationally prominent industrialists.

The new owners will also serve as active management of the company. Mr. Lowry, new president of the company, has had wide experience in executive plant management and organization. He is a graduate engineer, holding degrees from Northwestern University and the Massachusetts Institute of Technology. Mr. Sligh, new vice-president and treasurer, is regional vice-president and director of the National Association of Manufacturers. He has been a leader in the fight against over-taxation of business, and is in demand throughout the country as a business speaker. These men bring to the Lith-I-Bar Company a successful business team, with years of experience in general management and product development.

In a statement of plans, the new owners said: "This company is very much a going business. We are not turning the business upside down; we shall work with the present experienced personnel. We plan to assist our customers to make their operations more profitable to them, and we will continue product development through a constant program of engineering research."

New Ready-Mix, Block Plants Opened in Seven Locations

New ready-mix and concrete products plants have been reported in various sections of the country. The following installations comprise a fair "sampling".

California Homes & Materials Company facilities at Salinas, Calif., were inspected recently by local officials just before the new plant went into operation to produce lightweight concrete units. Joe and Frank Stanovich are the proprietors.

Abner and Harry Lange have added a ready-mix operation to the gravel plant which they launched in 1946 near Lakeport, Calif. If they do as well in this line as they did in the gravel business—parlaying an $8,000 investment into an $80,000 business in six years—they have a bright future for their ready-mix plant.

At Sleepy Eye, Minn., Roberts Brothers have installed equipment costing $30,000 for the production of ready-mixed concrete. Storage facilities will accommodate four carloads of cement.

The South Auburn, Wash., plant of the United Concrete Pipe Company (Baldwin Park, Calif.) is now in operation, producing 60-in. pipe for a Seattle water supply project. Bob Twitchell is plant superintendent, and Royd Lund is engineer. The firm has another plant at Moses Lake, Wash.

A new ready-mixed concrete operation was launched early this summer at Elma, Wash., when the El Monte Lumber & Fuel Company started its new $20,000 r.m.c. plant. Ed Seaman was chosen to supervise the new venture.

North Judson, Ind., was the site chosen for the third of William Van Hook's Russ-Stone plants, the others being located in Des Moines, Iowa, and Los Angeles, Calif. The newest plant, scheduled to go into operation soon, will be known as Great Lakes Russ-Stone Co., Inc. Mr. Van Hook patented the special block machine, which turns out units simulating cut stone.

Another new operation in the Midwest is the plant of K & J Concrete Products, Inc., at Trenton, Ill., where ready-mix and concrete products will be produced. Associated in the enterprise are Louis P. Jantzen and Fred Korte Jr.

Western Brick & Supply Co. Appointment to J. O. Weyand

J. O. Weyand

Jess O. Weyand has been appointed as manager of the Hastings, Neb., manufacturing and distributing facilities of the Western Brick and Supply Company.

Mr. Weyand was assistant chief engineer for the Wincharger Corporation of Sioux City, Iowa, from 1941 to 1943. From 1943 to 1946, he held a commission in the air arm of the Navy, serving in the Gulf Coast command. He was general manager of the Chase Plow Company of Lincoln from 1946 to 1950; and since that time has been safety director for the Nebraska Department of Labor.

Western Brick operates a concrete masonry and ready-mix concrete plant, a clay products plant, and a distribution warehouse at Hastings. The firm also has distribution warehouses at Lincoln, Omaha, and Nebraska City, in addition to a concrete masonry plant at Lincoln and a clay products plant at Nebraska City. It owns and operates aggregate plants throughout the state.

The Syracuse Ready-Mix Concrete Company, Inc., has opened a new plant at Burnet Avenue and Clark, Syracuse, N. Y. The firm is known as a pioneer in ready-mix in the Syracuse area.

Carter-Waters Corp. Staff Altered by Promotions Of Twelve Members

Promotions affecting 12 men on the staff of the Carter-Waters Corporation of Kansas City, Mo., have been announced by Albert R. Waters, president. The new appointments are as follows:

W. E. Beanway, vice-president and general manager; G. W. Kulhavy, secretary and manager of special products; N. B. Smith, vice-president in charge of sales; P. J. Kirner, treasurer; J. E. Bethel, credit manager; R. E. Walker, manager of building material sales; J. E. Scroggs, manager of railroad and municipal sales; M. A. Brown, advertising manager; J. A. Porter, manager of sales service; H. R. Armbruster, director of purchases; R. L. Coleman, production manager; and J. R. Seibel, assistant production manager.

It was indicated that all the promotions were made from within the firm's personnel.

Products Plant Is Rebuilt At New Washington Location

At Aberdeen, Wash., work has begun on the construction of a $35,000 premix plant for the Grays Harbor Cement Products Company, according to an announcement made by Robert Bracken, plant manager.

Originally set up in Arlington, Wash., the facilities are now being rebuilt at the Aberdeen site. It is expected that the daily capacity of the plant will be doubled or tripled over the former output. Bulk cement will be brought in from Seattle by truck.

New Oregon Block Concern Supplies Two Types of Units

One of the newest industries in the McMinnville, Oreg., area is the McMinnville Concrete Products plant, which is owned and operated by H. L. Worden and his son Marvin Worden.

Both conventional concrete units and others made of expanded shale under the trade name of Lite-Rock are produced. Both types are made on a Columbia block machine which can turn out more than 100 designs. Capacity is 480 standard-size blocks per hour under full operation. The raw material is obtained from the Empire Material Company, which works a deposit near Banks, Oreg.

According to the management, production for the present will be restricted to the two types of building units; but it is expected that the firm will eventually turn out a variety of related items.

● Correction

In our July issue, page 274, we erroneously listed Waylite among the types of aggregate used by the Kent Block Company of Grand Rapids, Mich. We have since been advised that Kent does not produce Waylite units, but that they are regularly manufactured by the Michigan Certified Concrete Products Company of Grand Rapids.

Production and Value Of Ready-Mixed Concrete in 1951

THE National Ready Mixed Concrete Association inaugurated this year an annual survey of the production and value of ready-mixed concrete. Questionnaires were sent to the 1,635 ready-mixed concrete companies in the United States of which the association had record, 535 of which were active member companies. Member companies are believed to represent a substantial majority of the total ready-mixed concrete produced in the United States each year, a conclusion which appears to be confirmed by the survey findings.

Returns were received from 691 ready-mixed concrete companies; 384 member companies and 307 non-member companies. There were reports, therefore, from 42 percent of the companies to which the questionnaire was sent; the return from member companies was 72 percent and the return from non-member companies to which the questionnaire was sent was 28 percent. This was the association's first effort to fill the need for a reliable measurement of the contribution which the ready-mixed concrete industry makes each year to the national economy.

The accompanying tables reflect the results of the survey of ready-mixed concrete activity in 1951. Table 1 shows that the reporting companies produced 37,760,191 cubic yards, valued at $424,136,796, with an average value of $11.23 per cubic yard. Earlier this year the association estimated that the ready-mixed concrete industry consumed about 50,000,000 barrels of cement in 1951. Oddly enough, this estimate is approximately equivalent to the cement consumption figure reported by the 691 companies which participated in the survey. Indeed, it is interesting to note that there are several points of similarity between other phases of the association's estimate and the results of the survey. For example, the association estimated ready-mixed concrete production last year at 38,000,000 cubic yards, with a value of $450,000,000. Both figures are close to the survey results.

Obviously the estimates of production, value, and cement consumption were too low, but it is believed that the 691 companies are responsible for the great bulk of the annual ready-mixed concrete production and that the 944 which did not answer the questionnaire represent, in the main, many small companies, including quite a few which engage only irregularly in the production of ready-mixed concrete.

There are other interesting data in Table 1. The reporting ready-mixed concrete producers used over 27,000,000 tons of sand and nearly 36,000,000 tons of coarse aggregate. The average production was over 54,000 cubic yards; the median production was 27,400 cubic yards. Average consumption of portland cement per cubic yard of concrete was 1.35 barrels; average consumption of sand was .72 tons per cubic yard, and average consumption of coarse aggregate was .95 tons per cubic yard.

Table 1

Ready Mixed Concrete in 1951

Companies reporting	691
Cubic yards of concrete	37,760,191 cu. yd.
Total value	$424,136,796
Portland cement	50,873,199 bbl.
Sand	27,218,748 tons
Coarse aggregate	35,911,177 tons
Average* production	54,646 cu. yd.
Median* production	27,400 cu. yd.
Average value	$11.23 per yd.
Average portland cement	1.35 barrels per yd.
Average sand	.72 tons per yd.
Average coarse aggregate	.95 tons per yd.

*The average production was determined by dividing the total production by the number of reporting companies; the median production is that of the "middle" company—i.e. in this sample of 691 companies, the 346th company from the top or bottom.

Table 2 is an analysis of the distribution of ready-mixed concrete production in 1951 by size of company, based on returns from the 691 companies. The largest number of companies are in two brackets: those turning out up to 10,000 cubic yards, in which there are 128 companies, responsible, however, for only 2.1 percent of the total production; and in the second bracket those producing from 10,000 to 20,000 cubic yards, in which there were 148 companies, responsible for 5.9 percent of the total production.

Five companies produced over 500,000 cubic yards of ready-mixed concrete last year, accounting for 12 percent of the total production. The next largest bracket was in the 100,000 to 125,000-cubic yard group, in which there were 27 companies, producing 8 percent of the total. It is interesting to note that the 50 percent of companies representing the smaller one-half (*i.e.* below the median) produced only about 12.5 percent of the total yardage. Further, 50 percent of the yardage was produced by 88 percent of the companies in the smaller bracket; the remaining 50 percent was produced by the 12 percent of the companies in the larger bracket.

Table 3 summarizes returns on other phases of the survey. Of the companies reporting, 185 have agitating equipment, with 2,309 units in active operation and an average number of 12.5 units per company. Central mixing plants are operated by 198 companies, which have 251 such plants, at an average of 1.3 plants per company.

Truck mixers are operated by 555 companies, which have 7,340 truck mixers in operation, representing an

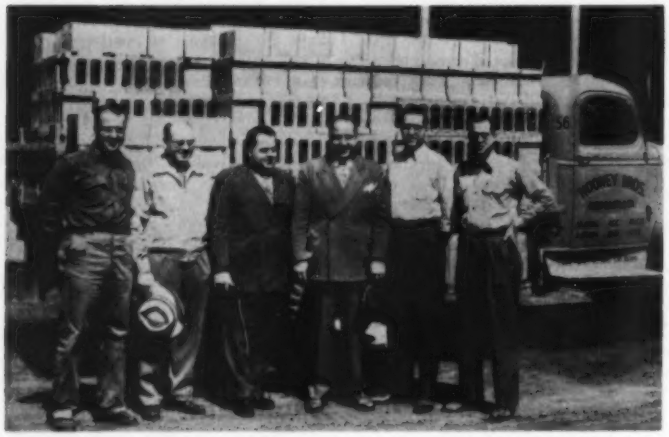
(*Continued on page* 209)

Table 2

Distribution of 1951 Ready Mixed Concrete Production by Size of Company

1951 Production (cu. yards)	No. of Companies	Cubic Yards Produced	Percent of Reported Production	Percent of Participating Companies	Accumulated Percents of Totals	
					Total Production	Total Companies
0— 10,000	128	800,870	2.1	18.5	2.1	18.5
10,000— 20,000	148	2,212,548	5.9	21.4	8.0	39.9
20,000— 30,000	87	2,123,382	5.6	12.6	13.6	52.5
30,000— 40,000	78	2,682,710	7.1	11.3	20.7	63.8
40,000— 50,000	43	1,893,733	5.0	6.2	25.7	70.0
50,000— 60,000	38	2,075,088	5.5	5.5	31.2	75.5
60,000— 70,000	30	1,964,102	5.2	4.3	36.4	79.8
70,000— 80,000	17	1,257,994	3.3	2.5	39.7	82.3
80,000— 90,000	15	1,233,338	3.2	2.2	42.9	84.5
90,000—100,000	18	1,719,400	4.6	2.6	47.5	87.1
100,000—125,000	27	3,006,389	8.0	3.9	55.5	91.0
125,000—150,000	15	2,029,105	5.4	2.2	60.9	93.2
150,000—175,000	8	1,273,117	3.4	1.2	64.3	94.4
175,000—200,000	8	1,457,576	3.9	1.2	68.2	95.6
200,000—250,000	9	2,006,658	5.3	1.3	73.5	96.9
250,000—300,000	7	1,979,447	5.2	1.0	78.7	97.9
300,000—350,000	5	1,570,839	4.2	0.7	82.9	98.6
350,000—400,000	3	1,105,822	2.9	0.4	85.8	99.0
400,000—450,000	2	824,154	2.2	0.3	88.0	99.3
450,000—500,000	0	0	0.0	0.0	88.0	99.3
over 500,000	5	4,543,919	12.0	0.7	100.0	100.0
Totals	691	37,760,191	100.0	100.0	.....	.....

Mooney Brothers Find Reputation for Quality Products is Prime Asset



Courtesy of Danford Studio

The six Mooney brothers of New Castle, Pa., share responsibility for various phases of their company's operations. They are, left to right: Ralph, in charge of excavating and grading; Paul, in charge of all maintenance work; Sam, who serves as president; Bill, vice-president; Lewis, in charge of material sales; and Gerald, in charge of all trucking.

By WILLIAM M. AVERY

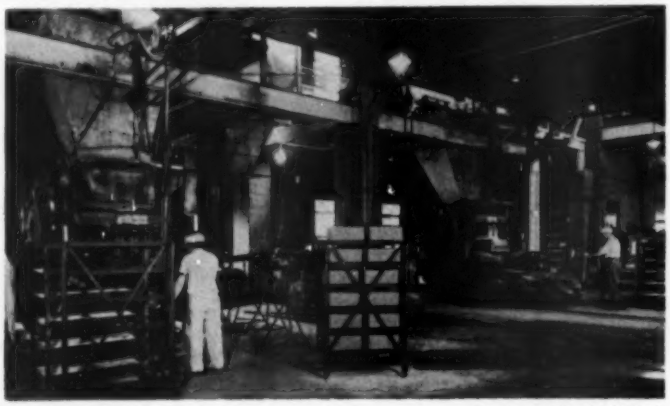
Mother ON THE SPOT report

AFTER almost 30 years of successful operations in the rough and tumble building materials field, Mooney Bros. Supply Company of New Castle, Pa., is more firmly convinced than ever that the secret of profitable operations is an almost fanatic determination to market only such materials, and to render only such services, as meet the very highest standards of quality. Although the principle is far from new, there are elements of novelty in the extremes to which the company has gone in bringing about its application to every phase of its varied and complex operations.

The line of building materials actually produced by the company includes cinder and heavyweight concrete masonry units of almost every conceivable size and shape; various special products, such as wall coping, lintels, stepping stones, Split-Rock and drain tile; sand and gravel, ready-mixed concrete, and both hot and cold mixes of bituminous concrete. As a convenience to its customers the company also carries a complete line of builders' hardware and related supplies, and maintains a large stock of steel scaffolding for use on a rental basis with option to purchase.

The accent throughout all these varied activities is on quality control, reflecting the management's belief that in the long run quality is the only enduring form of sales appeal. Exacting quality control in relationship to concrete products and ready-mixed concrete, for example, starts in the pit from which the company produces sand and gravel used in these operations, and it persists at every stage of production right up to the moment the various materials are delivered to the purchasers. Focal point of the control system is a well-equipped testing laboratory operated by a full-time registered professional engineer who has had many years of experience in the materials testing field. It is his duty to test both raw materials and end products to determine if they meet the company's own high standards as well as specification requirements, and to cooperate with the heads of the various departments for the purpose of amending practice whenever his findings indicate that amendment is necessary. Among the facilities regularly used in connection with quality control is a compression tester which is adaptable to breaking concrete cylinders as well as masonry units. The Mooney plant was one of the first in the industry to be equipped with a Forney compression tester, and the company has for some time had a continuous testing program for the purpose of maintaining the high quality of its block output.

Although a detailed discussion of the sand and gravel plant is beyond the scope of this article, brief mention of some of the equipment used will serve to indicate that every facility has been provided to assure the output of quality aggregates. The crushing and screening plant is located at the rear of the company's 15-acre main property in the city of New Castle, and bank mate-



A general view in the machine room of the block plant, showing the two high-production block machines. Mixers are on the balcony.

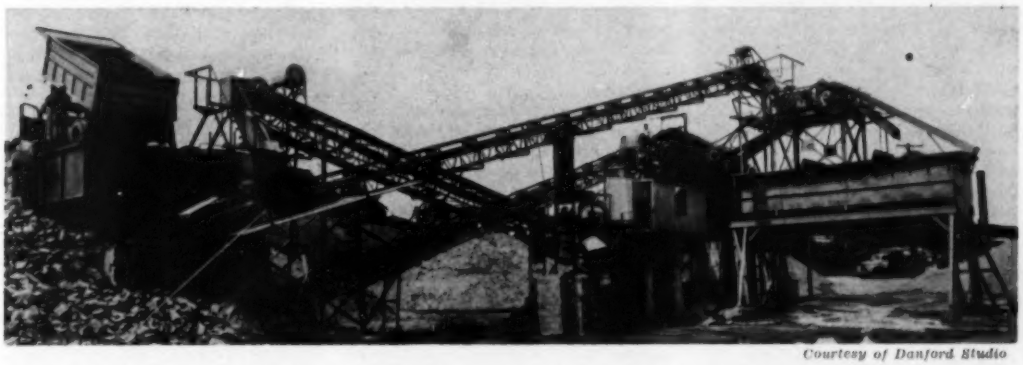
Courtesy of Danford Studio

rial is trucked to it from a pit about two miles away. It was built about five years ago in order to create an assured source of prime material for the company's concrete products and ready-mixed-concrete operations. During the spring of this year the facilities were completely remodeled and equipment was added to bring capacity up to its present level of approximately 100 t.p.h.

The basic plant unit is a 305-W Pioneer installation operating in conjunction with an extra large drag-type dehydrator. Oversize (plus 2½-in.) material is crushed by a Cedarapids No. 3 Kubit impact breaker which operates in closed circuit with a vibrating screen to produce a cubical aggregate with the minimum content of elongated and flat particles. Two Ingersoll-Rand centrifugal pumps supply

Courtesy of Danford Studio

A part of the company's fleet of ready-mixed concrete trucks. The present fleet totals nine units ranging in capacity from 3 to 5 cu. yd.

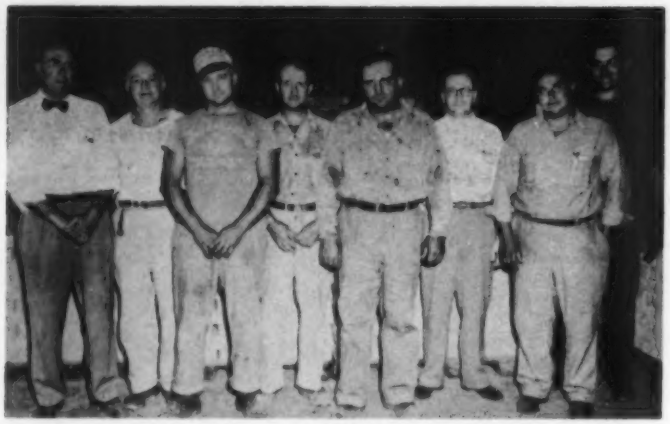


Courtesy of Danford Studio

A view of the company's modern facilities for crushing, screening, and washing sand and gravel. As a result of the remodeling and expansion program carried out last spring, plant capacity is now approximately 100 t.p.h.

Courtesy of Danford Studio

The latest addition of major equipment is this 60-t.p.h. plant for producing both hot and cold mixes of bituminous concrete.



Some of the key men in the company's quality control lineup are (left to right): Clifford Smith, materials engineer; Jack Kuiken, concrete products superintendent; Les Kuiken, assistant concrete products superintendent; Dave Wheale, yard foreman; Ed Mooney, yard leader; John Cater, truck dispatcher; Joe Buczek, maintenance superintendent; and Jake Santgeorge, asphalt plant operator.

ample water for thoroughly washing all the materials. Final sizing is done with a 42-in. by 10-ft. triple-deck Cedarapids screen mounted over multiple-compartment Heltzel steel bins used for loading trucks. Materials are produced for general sale as well as to supply the company's various concrete and black top requirements.

The aggregate plant is also used periodically for washing, crushing and screening the public utility cinders used in the production of lightweight concrete masonry units. It is used in this fashion for several consecutive days whenever the cinder stockpile requires replenishing. Output runs from 250 to 300 tons per day. The material is separated into two sizes (coarse, consisting of minus 7/16- plus ¼-in. and fine, consisting of ¼-in. to dust) and stockpiled in a saturated condition. Cinders remain in the stockpile for from two to four weeks before being reclaimed and trucked to the block plant.

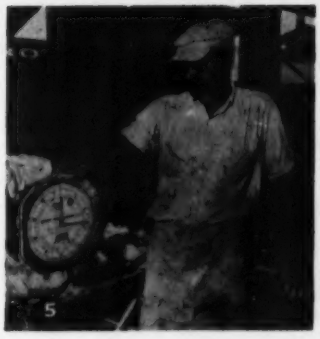
The Mooney brothers produced their first concrete masonry units in 1934, but operations remained on a relatively small scale until the present plant was constructed in 1946. Although only one V-2 Besser Super Vibrapac was installed initially, the design and layout was based on a two-machine setup. The second unit, a V-3 Super Vibrapac was installed in 1948, and there is still ample space for a third machine if it should ever be needed.

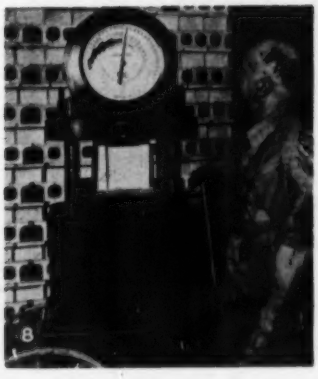
Except for the last 18 months, during which output has been somewhat curtailed due to the shortage of cement, total production of masonry units has risen steadily, going from 2,577,500 units in 1946 to 4,091,000 units in 1950. Normally operations are on the basis of three machine-shifts per day, but when demand is high (and a sufficient amount of cement is available) there may be as many as five machine-shifts in 24 hours, with output at the rate of 5,000 8-in. equivalents per machine per 8-hr. shift.

Aggregates used in the production of block are dumped into a covered hopper and elevated by means of a totally enclosed inclined belt conveyor to the plant bin. Feed from the hopper to the conveyor belt is by means of a Dings magnetic separator, which also serves to remove any iron inclusions, particularly when cinders are moving through the system. The overhead bin accommodates 350 bbl. of cement, 200 tons of pea gravel, 175 tons of concrete sand, and about 600 tons of purchased limestone sand. The company hauls about 50 percent of its total cement requirements in its own fleet of 12 Fruehauf bulk trailers. These units, which have a capacity of about 70 bbl. each, are also used on occasion for additional cement storage to supply the block plant. The cement handling system consists of an undertrack hopper on the rail siding, a bucket elevator and a screw con-

Left: As a precaution against iron inclusions, all aggregates for use in block are passed over this magnetic separator.

Below: Split-Rock is produced by breaking 3-in. and 6-in. solid units with this air-operated guillotine machine.





These photos by courtesy of Danford Studio

The photographs above show just a few stages of the company's many-phased program for quality control.

1. Aggregates are thoroughly screened at the sand-and-gravel plant.

2. High-pressure water sprays do a thorough washing job before the material receives its final screening.

3. Materials engineer Clifford Smith runs frequent sieve analyses to assure that the output of the plant meets all specification requirements.

4. In batching operations all materials are carefully weighed.

5. Water for mixing concrete is accurately metered to assure best performance of the material and maximum strength of the units.

6. Concrete products superintendent Jack Kuiken taking readings from a portable pyrometer used for checking temperatures in the curing kilns.

7. Experienced mixer operators check every mix for consistency.

8. Masonry units are selected at random and tested for compressive strength on this hydraulic testing machine.

Courtesy of Danford Studio

Split-Rock units in random ashlar pattern being applied to a wall of standard concrete masonry units.

veyor which discharges into the bin.

The setup for proportioning and mixing is conventional, these facilities being located on a mezzanine floor above the block machines. The batcher travels on overhead rails in order to serve the two 50-cu.ft. Besser mixers. Aggregates and cement are carefully weighed and the water for each batch is metered, compensation being made for the moisture in the aggregates as determined by tests made at frequent intervals. Standard portland cement is used exclusively, and admixtures are not employed at all except on units to be used for making Split-Rock, these requiring the addition of a waterproofing agent.

Conventional equipment and procedures are also used in off-bearing and in loading and handling the 72-unit steel racks. Currently there are four power lift trucks in service: two Towmotors, one of 4,000-lb. capacity equipped with solid tires, the other of 6,000-lb. capacity with pneumatic tires; a 6,000-lb. Clark high lift; and an Erickson fork lift.

The curing system is comprised of 13 kilns which have a total capacity of 268 racks or 19,296 standard 8- by 8- by 16-in. units. Seven of the kilns hold 13 racks each, three hold 26 racks each, and the remaining three hold 20, 29 and 40 racks. This rather wide capacity spread was dictated largely by the amount and arrangement of the space available as various additions were made to the system, but it is interesting to note that the company has found that the smallest kilns perform best from every possible point of view.

Steam for curing is supplied by an 85-hp. Kewanee fire-box boiler, converted from stoker coal to gas firing. Steam is admitted to each kiln as soon as loading is completed, and the temperature is gradually brought up to around 180 deg. F. over a three-hr. period. The maximum temperature is held for approximately five hours, this being accomplished by means of hand control, and checked periodically with a Foxboro portable pyrometer. Completing the cycle is a 4-hr. soaking period and a 1-hr. period during which exhaust fans clear out the kilns before unloading operations commence.

An important item among the special masonry products manufactured by Mooney Bros. is Split-Rock, made by breaking 3-in. and 6-in. thick solids with an air-operated guillotine. The basic units are made in four standard pastel shades, and the colors, in combination with the stone-like surfaces exposed by the breaking operation, produce wall textures of extraordinary beauty.

Split-Rock is produced by a three-man crew at the rate of about 7,500 sq. ft. of wall surface per 8-hr. day, or enough to face five small homes. In order to hold culls to the minimum, the units are aged for three weeks before they are broken. The finished product is placed on wooden pallets and delivered to the job site in a mingled range of color tones.

In addition to machine-made masonry units and Split-Rock, the block plant turns out such precast items as coping, sills, lintels, and various specialties, in both heavyweight materials and cinder aggregate. The block plant is operated on the basis of three machine shifts per day with a total crew of about 25 men. Almost all production is cubed to facilitate handling and loading.

The company entered the ready-mixed-concrete field in 1934 with three 2½-cu. yd. truck mixers. At present there are nine units in all, three of 5-cu. yd. capacity and the remainder of 3-cu. yd. capacity. These units are charged from a modern dry-batching plant which includes every facility for the most exacting control.

The most recent installation of major equipment is a 60 t.p.h. Cummer plant for producing both hot and cold mixes of bituminous concrete. Work started on the project in April of this year, and the facilities are now in full operation.

Much of the company's success with its varied line of building materials is due to aggressive, far-sighted merchandising policies, in which advertising figures prominently. Newspaper, radio and direct-mail campaigns have been instrumental in developing market areas at some distance from New Castle, and this trend has been encouraged by the publication and distribution of detailed price lists covering even the smallest outlying communities.

Mooney's general advertising program is handled by an advertising agency. The formation of a general long-range plan has been worked out, with the agency supplying all direct mail material and the basic newspaper program. Starting in September, 1952, approximately 60 column inches will be used each week to tell customers and prospects why scientific control can assure them of better concrete products. This series will run one night each week in the local newspaper. The other five nights will be devoted to strict product advertising. The institutional ads will feature photographs of the plant and explain the function of the equipment illustrated. For example, the Forney compression tester will be featured several times to point out its function and how it is used for rigid, scientific quality control. Other ads may feature sand washing equipment, or batch weighing equipment. A main objective of the advertising program is to demonstrate that concrete blocks, like any other manufactured product, are only as good as the materials used and the "know how" employed in their manufacture.

In addition to their activities in producing and marketing various

(*Continued on page* 209)

Ready-Mixed Concrete Company Grows With the Industry

THE Valentine Concrete Company, Inc., of Springfield, Mass., is an excellent example of the reason why the ready-mixed concrete industry has grown so rapidly and steadily and why it is here to stay. This company was formed in 1942

By WALTER E. TRAUFFER

with a small batching plant and 10 truck mixers. In September, 1944, a new and modern batching plant was built which has ample capacity for future demands. Smaller batching plants were also erected at Northampton and Westfield, Mass., giving the company economical coverage of an area about 50 miles square which includes numerous residential and industrial communities. Each of these operations has since been replaced or modernized and kept abreast of current practices in the industry.

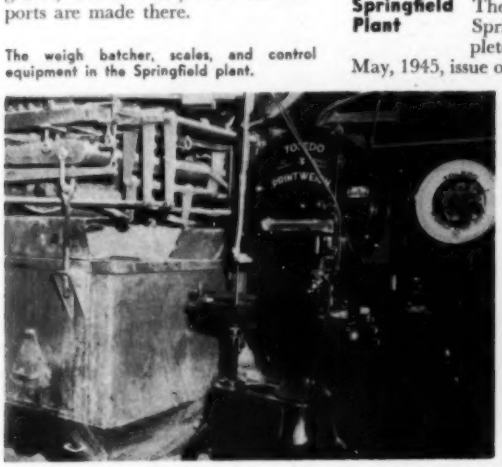
Company officials firmly believe that quality is the first requirement in this business and that the supervision of a reputable testing firm is the best insurance of quality and the best assurance to customers. The Thompson & Lichtner Company of Boston, one of the best known firms in this field, is consulting engineer for Valentine, designing all mixes, making all tests, etc., and making bi-monthly reports. The company also controls its source of sand and gravel, and monthly tests and reports are made there.

The Springfield, Mass., plant of the Valentine Concrete Company. The warehouse is at the left; garage and office building at the right.

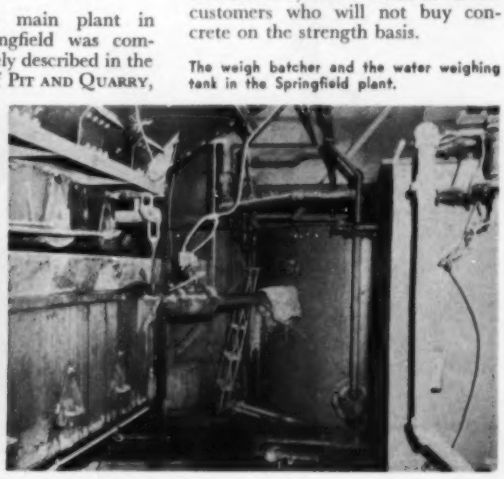
Among other things, the company can be proud of its safety record. John B. Donovan, president and general manager of the company, is also president of the Hamden County Accident Prevention Council, a subsidiary of the National Safety Council. This active group holds regular meetings, an annual banquet, a safety contest, etc. About 74 truck fleets are entered in the safety contest, and the Valentine fleet always ranks high; it has several times been first in its own group, the construction division. The company's drivers are given individual awards and other inducements.

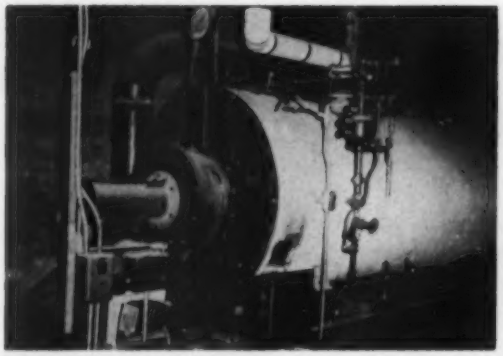
Springfield Plant The main plant in Springfield was completely described in the May, 1945, issue of PIT AND QUARRY, a few months after it went into operation. It is entirely of concrete and steel construction and was supplied complete by the C. S. Johnson Company. In 1946 the Scientific Concrete Service Corporation (SC)² system of control was installed and this has given entire satisfaction. The better moisture control and more accurate batching have resulted in a more uniform and much stronger concrete with the same mixes. The cement in the mixes could safely have been cut down considerably, but the company prefers to pass on the benefits to its customers. As a result a 2,500-lb. concrete actually tests about 3,300 lb. There are a few customers who will not buy concrete on the strength basis.

The weigh batcher, scales, and control equipment in the Springfield plant.

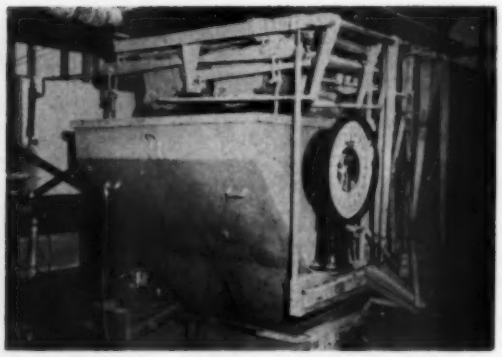


The weigh batcher and the water weighing tank in the Springfield plant.





The 15-hp. boiler which heats water and aggregates at Springfield.



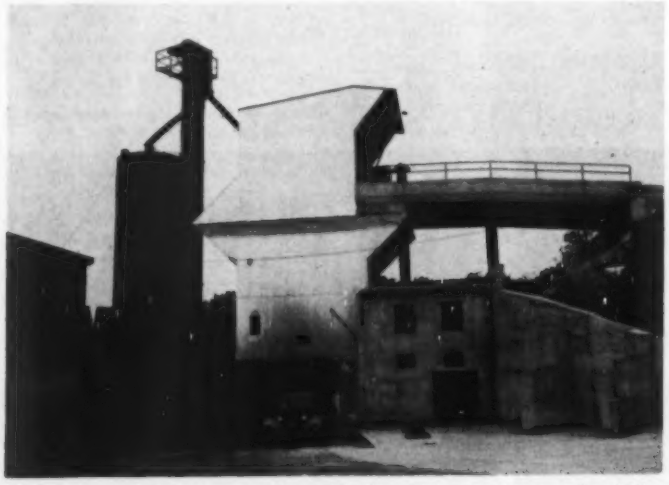
The weigh batcher and the dial scales in the Northampton plant.

At this plant, as at the other two, aggregates are received by truck from a sand-and-gravel plant at Westfield in which the company has an interest. They are discharged from a 2-lane concrete and steel ramp into a 400-ton, 6-compartment bin. Recently a 120-ton, 3-compartment bin was installed for lightweight aggregates. Because of the nearness of and the control over the source of supply, no reserve stockpiling of aggregates is necessary at any of the plants.

Cement is received at this plant in l.c.l. containers of 50- to 60-bbl. capacity, five to a gondola car. Compressed air is used to pump cement from these containers either into the three 250-bbl. cement bin compartments or into a 750-bbl. auxiliary storage tank. Another l.c.l. container under the tank serves to pump the cement from it to the bins as needed. Two Johnson weigh-batchers, a 4-cu. yd. for aggregates and a 3,000-lb. for cement, are used. Water is also weighed, using the $(SC)^2$ compensation method. Provisions are made for heating the aggregates and water for cold weather operation.

In case of a cement shortage, cement can be transferred from one plant to another in bulk trucks. This cement is dumped from the ramps through hatches into the cement bins, a system which has been very helpful several times in recent years.

The original 15-lb. 45-hp. boiler in this plant was replaced by a Cleaver-Brooks OB 10 boiler designed for this type of application. It is fired with No. 2 oil and is used only for heating the water and aggregates. Condensate is returned to the boiler as hot feed water. In winter the boiler is kept going night and day to keep the water temperature at 180 deg. F. and the aggregates warm enough so that a concrete temperature of 70 deg. F. can be maintained.



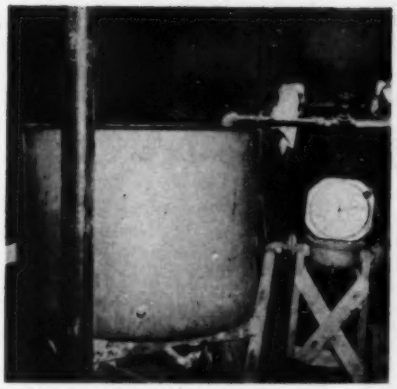
The Valentine plant at Northampton, Mass. Note the extensive use of concrete in retaining walls, buildings, drives, etc.

At this plant are shops, garages, warehouses, etc., for all the plants. Parts storage includes duplicates of all moving parts, including 5-, 10- and 75-hp. motors, compressors, etc. The truck fleet for all plants consists of 21 truck mixers, all of 4½-cu. yd. capacity, including 11 Chain-Belt, 4 Jaeger, 4 Smith and 2 Ransome mixers. These are mounted on Autocar and Mack diesel chassis.

Northampton Plant The company's Northampton, Mass, plant is located 22 miles north of Springfield, in a center of education. Within 10 miles are the famous Smith and Mount Holyoke Colleges for women, Amherst for men, and the University of Massachusetts. A survey by the Massachusetts Industrial Board had indicated that Hampshire County would show the greatest growth within 10 years of any county in the state; and for this reason the original small plant was replaced in 1948 with a modern 300-cu. yd. per day batching plant. That this step was justified is evident from the fact that the output of this plant averages 150 cu. yd. daily.

This plant was really built to last—450 cu. yd. of concrete were used for retaining walls, buildings, drives, etc., and the plant buildings are all steel. C. S. Johnson supplied the bins, batchers, etc.

Aggregates are received in trucks and are discharged from a ramp into the 200-ton, 4-compartment aggregate bin. Bulk cement is transferred from cars by screw conveyor and elevator to the 100-bbl., 2-compartment plant bin or to the 850-bbl., 2-compartment reserve tank. The 2-cu. yd. weighing batcher has four compartments, for sand, two gravels and cement, and is connected to a Yale dial scale. Water from the



The water meter and the tank for heating water in cold weather (Northampton plant).

Loading a 4½-cu. yd. truck mixer at the Northampton plant.

city mains is measured by a Neptune meter direct to the truck mixers. In cold weather, however, the water is heated in a 1500-gal. tank and then fed to the truck tanks from which it is measured out. A National low-pressure steam generator type boiler heats the water, and pipes are used in the aggregate bins.

Westfield Plant The original facilities at Westfield, 13 miles west of Springfield (also a C. S. Johnson plant), had been used for the construction of a dam before it was diverted to commercial use. This became inadequate to meet the growing demand, and in 1950 a new and larger plant was built. As in the other plants, aggregates are discharged from a truck ramp into the 120-ton, 3-compartment bin. Cement is fed from cars by screw conveyor into trucks which discharge from the ramp into the 80-bbl. cement bin. This plant also has a 2-cu. yd. batcher and a dial scale. Mixing water comes from a 100-g.p.m. natural spring. There is no provision for heating; so this plant is not operated in extremely cold weather.

Ready-Mix Production in 1951

(*From page* 201)

average of 13.2 units per company. Proportioning plants were reported by 504 companies, which have 858 such plants in operation, at an average per company of 1.7. Non-agitating units were operated by 31 companies, which have 217 such units in operation, at an average per company of 7.8. (See Table 3.)

The average number of agitators per central mixing plant reported was 9.6. The average number of truck mixers per proportioning plant was 7.8.

Table 3

Equipment and Plants in the Ready Mixed Concrete Industry

Type	Number of Companies Reporting	Number of Units Reported	Average Number of Units Per Company
Agitators	185	2309	12.5
Central mixing plants	198	251	1.3
Truck Mixers	555	7340	13.2
Proportioning plants	504	858	1.7
Non-agitating units	31	217	7.0

Average number of agitators per central mixing plant reported above—9.6.
Average number of truck mixers per proportioning plant reported above—7.8.

Mooney Brothers Supply Co.

(*From page* 206)

building materials, the six brothers own and operate two large trucking concerns—Mooney Bros. Trucking Co. and Weston Hauling, Inc., serving the tristate area of western Pennsylvania, eastern Ohio and northern West Virginia.

All maintenance and repair work on the large fleet of trucks operated by these concerns is done in well-equipped shops adjacent to the block plant. Other facilities located on the same property include the executive and business offices of the three concerns, a well-stocked hardware store, and a warehouse.

Protein Compound Announced As Air Content Control

Lightweight concrete having an air content of more than 25 percent without excessive loss of strength can now be produced in commercial quantities for use in roofs, flooring, and walls. This announcement was made when a new product called Cemtein was presented by the Chemicals Division of the Van Hoven Co., St. Paul, Minn.

Cemtein is a protein compound to be added during concrete mixing. It activates the ingredients in such a manner as to create and evenly distribute millions of tiny air bubbles throughout the mass.

The positive control of the quality and quantity of these air bubbles is the new feature involved in the discovery, according to Henry D. Van Hoven Jr., the chemist who developed the formula.

Ownership and operation of Perma-Stone Dallas Company, Dallas, Tex., has been taken over by Lyne A. Price, who has been with the company since 1945 as a sales representative.

A new ready-mixed concrete plant has been set up by Lott Builders Supply Company at Douglas, Ga. Three 3-cu. yd. Jaeger truck-mixers deliver ready-mix to users within a 25-mile radius of Douglas.

Paul Bronson, vice-president of the Best Block Company, Milwaukee, Wis., recently was elected chairman of the Technical Problems Committee of the National Concrete Masonry Association.

The Bradley Block Company, a new producer of concrete products and brick at Cleveland, Tenn., was opened recently. The company is headed by Tom E. Swift, president, and Will D. Richards, secretary-treasurer and plant manager.

Florida Plant Uses Same Facilities For Handling, Storing, and Batching Materials for Block and Ready-Mix

• A general view of the Sarasota Concrete & Block Company's modern plant at Sarasota, Fla.

another ON THE SPOT report

ONE of the best designed combined block and ready-mixed concrete plants we have seen in some time is being operated by the Sarasota Concrete & Block Co., a two-year-old concern located at Sarasota, Fla. Proportioned with an eye to future growth possibilities, the plant includes unusually generous provisions for the storage and handling of raw materials, as well as many desirable features of automatic control not ordinarily found in relatively small installations. A somewhat unusual feature is the use of the same facilities for storing and batching materials for both the ready-mix and block operations.

The plant is located on a fine industrial site on the outskirts of the city, and rail sidings on each side of the property provide for handling incoming cars of cement and aggregates without interference. Aggregates are discharged from hopper-bottom cars into an under-track hopper, from which a system of 18-in. belt conveyors and a reversible shuttle belt distributes the materials to five ground-level open storage pockets. The shuttle conveyor is supported on top of the six concrete masonry division walls which form the storage pockets, and the conveyor is spotted to discharge into the desired compartment by means of a reversible winch controlled from the ground. This primary storage system will accommodate between 300 and 400 cu. yd. of coarse material and several carloads of each of the finer sizes used.

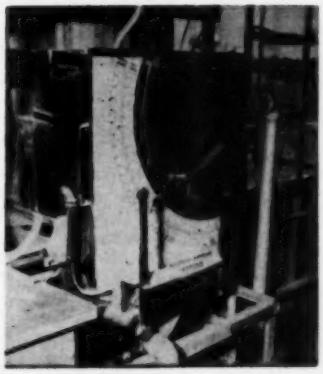
Two conveyors, a reclaiming belt located in a tunnel below the storage piles, and a long inclined conveyor which terminates above the batching plant deliver materials as desired to the 300-ton 4-compartment Heltzel bins. The two inclined conveyors were furnished by Robins, while the short conveyor under the track hopper, the shuttle over the storage system, and the reclaiming conveyor are all Barber-Greene units.

The cement storage system consists of a 400-bbl. 2-compartment cone-bottom steel tank adjacent to the rail siding, and two 214-bbl. working hoppers located above the batcher. A single screw conveyor and a bucket elevator serve for initial unloading and storage and for reclaiming from the main storage tank. All the bins are equipped with Bin-Dicators which actuate an audible signal to indicate when the supply of any material becomes dangerously low.

The present facilities provide only for dry batching, but sufficient headroom has been provided for the eventual installation of central mixing equipment. Aggregates are drawn from the bins to the 3-cu. yd. Heltzel batcher by means of hand-operated gates, but the cement feed system includes a two-speed screw conveyor which cuts off automatically at the pre-set weight, and a Buffalo automatic cut-off meter provides equally accurate control for water. There is also an automatic dispenser for Pozzolith, which is used at the rate of ¼-lb. per bag of cement in all ready-mix batches. Calcium chloride and vinsol resin are used in block mixes.

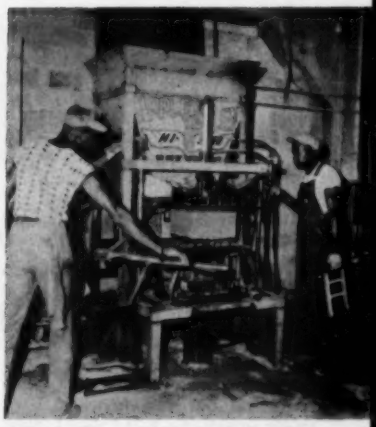
The two batching operations are carried on throughout the day with-

• Aggregates are stockpiled in a 5-pocket ground storage system located over a reclaiming tunnel.

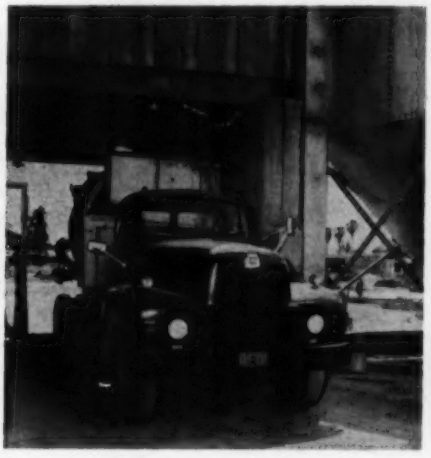


• The automatic dispenser for a cement dispersing agent used in all ready-mixed concrete batches.

• Left: A closeup of the batching plant serving both block and ready-mix production.



• In a separate room adjacent to the batching plant the block machine is fed by gravity from a mixer below the batcher.



• Left: A closeup of the 3-cu. yd. batcher. Aggregate gates are closed manually, but cut-offs for cement and water are automatic.
• Right: One of the transit-mix units receiving materials from the batcher.

• Both racks and cubes are handled with this fork lift truck.

• Left: Dust collectors installed to recover cement dispersed at the block mixer and at the point of discharge into truck mixers.

out any apparent interference. The setting of a flop gate under the batcher determines whether the materials discharge into the block plant mixer, located on the floor below, or into a waiting truck mixer on the roadway which is straddled by the batching plant. The average time for turning out any batch up to 3 cu. yd. is about 40 seconds.

Last year the plant's ready-mixed-concrete operation averaged about 70 cu. yd. per day, but output often runs in excess of 100 cu. yd. in a day. The present truck fleet comprises six units consisting of Rex, Jaeger, and Smith mixers mounted on International Series L-190 trucks.

The block machine is an Appley-Yellen Hi-Speed unit which produces two 8- by 8- by 16-in. units (or equivalents) on cored pallets in each cycle of operation. It is fed by gravity from the 14-cu. ft. Appley mixer located on the mezzanine floor of the batching plant. Production runs from 2,500 to 3,000 units per 9-hr. day. Racks and cubes are handled by means of a Clark fork lift truck.

Racks of green units are kept under cover until the day after manufacture, when they are transferred to the paved storage yard and assembled in cubes which contain 60 blocks each. Three units of what will eventually be an 8-kiln curing system are already in service, and there is ample space in the machine room for additional storage when required.

The blocks are dated and certified by the Pittsburgh Testing Laboratory, which also maintains a constant check on the quality of the ready-mixed concrete produced. Four-day tests on the company's masonry units show an average strength of 950 p.s.i.

At the time of our visit the company was in the process of completing an installation of American Dustube dust collectors to improve working conditions in the plant and to recover cement dispersed at the mixer and at the point of discharge into truck mixers. As indicated by the accompanying photograph, the collector units were located above the block plant mixer and connected by round sheet-metal ducts to the dispersal points. It was anticipated that cement recovery would be at a sufficient rate to pay for the installation very soon.

The Sarasota firm employs about 30 men in its combined block and ready-mixed-concrete operations. Jack O. Porter is president of the company, Ralph Deacon is vice-president, and Clifford Graf is general superintendent.

The Murfreesboro Ready Mixed Concrete Company, Murfreesboro, Tenn., is producing "Homeward Steps" of precast concrete under franchise from the Roger F. Williams Company, Des Moines, Ia.

Richard I. Young and Alvin O. Wiese were recently elected vice-presidents of the United Concrete Pipe Corporation, Baldwin Park, Calif.

Effect of Particle Orientation Upon Compression Strength Results

From "The Law of Grading for Concrete Aggregates"

BY L. BOYD MERCER, M. C. E.
Chief Engineer Ready Mixed Concrete Ltd.
and Associated Companies
Melbourne, Australia

COMPRESSION test results, even among a group of specimens from one batch, frequently include some inexplicably high or alternatively low individual figures which defy simple explanation. The purpose of this investigation was to obtain an indication of the effect of aggregate particle orientation in explaining such occurrence.

Test—In order to obtain an indication of the effect of particle orientation upon the compression strength, two test cylinders were hand-packed with aggregate particles and grouted. In one case flaky particles were placed upright; in the other case flat particles were placed horizontally. For comparative purposes, a third test cylinder containing the mortar as used for grouting was cast and also a fourth with normal graded concrete having the same water-cement ratio.

The results of compression tests upon the above test cylinders are presented in Table I.

Although the above, as a single test, has little real value, it is nevertheless regarded as significant for explaining those cases of compression failure at unduly low figures as due to coincidence of particle arrangements presenting vertical shear planes.

Conclusions—Coincidences in the arrangement of coarse aggregate particles can create fields of weakness in compression test specimens with resulting low strength when such weaknesses occur in the plane of shear, and relatively high strength when the particles project through the natural shear planes. It is submitted that this can explain some of those notably low or high results which occasionally occur, without other apparent reason, in tests of concrete specimens containing large aggregate particles, especially where such particles present smooth or plane surfaces.

Table I—Strength for Various Particle Arrangements

Specimen	Compression Strength at 7 Days—P.S.I.	Weight per Cubic Foot—Lb.
Stone upright	1,332	159.0
Stone flat	2,235	159.5
Mortar	2,255	156.0
Normal arrangement	2,259	160.0

Rapid Transit for Concrete At Pine Flat Dam Project

Construction of the Pine Flat Dam at King's River, Calif., (PIT AND QUARRY, August, 1951, page 66), a job requiring 2,150,000 cu. yd. of concrete—1,600,000 bbl. of cement and approximately 4,000,000 tons of aggregates—is expedited by what is said to be the world's fastest cableway.

Concrete is carried to the top of the dam in 17.5-ton loads at a speed of 20 m.p.h. Powered and controlled by G-E equipment, the rig delivers 17,200,000 lb. of concrete per day up an elevation of 440 ft. Cement for the project is furnished by the Calaveras Cement Company.

The Marietta Concrete Corporation recently issued an eight-page pamphlet on Beslite, its lightweight aggregate product. The booklet describes its properties, characteristics, uses, production, construction details and test results. The pamphlet is available upon application to The Marietta Concrete Corporation, Marietta, Ohio.

COMMENT
from the
BUTLER ENGINEER

Angelic Automatic Batcher Has Wings

A couple of months ago I told you about a terrific new baby born at Butler Bin — a highly complex, interlocked, completely automatic, mistake-proof, push-button control panel for batching 7 materials.

Now that baby has a brother. I know—I know! Nine months is the gestation period but we work miracles at Butler Bin — and nothing premature, either. Maybe we should change our name to Dionne Bin Co., un-Ltd.

But the baby's an angel. Actually has wings. He's built like this instead of straight-away like this . The wing design saves the operator many steps, saves space, speeds up work.

The baby's designed to batch ferrous ores of various kinds to stew up alloys. You can get an idea of the accuracy problem when I tell you that some of the ore chunks are big as Joe Louis' two fists — with the gloves on.

I was talking with a contractor on an earth fill job. Great trouble getting the specified density. Wrong type of soil. A salesman came in with a new kind of roller. At the end of his sales talk he said, "Mister, this roller'll give you 100% density."

"Sonny," said the contractor. *"The only 100% density I know about is when I've had too many martinis, a platter of french fries and a steak two inches thick!"*

And that goes double for —

The Butler Engineer

BUTLER BIN COMPANY
WAUKESHA, WISCONSIN

Botched Batches

How's That Again?

"WATER," says a clipping we've just received, "is unnecessary for the proper curing of concrete. As soon as a new concrete walk has set quite hard, cover it with sand and dirt, and keep it wet for a week or ten days."

Simple, isn't it?

Cause for Complaint

WE understand that the Egyptian Government has called in an assortment of experts to perform plastic surgery on the Sphinx. The old girl is said to be suffering

from infirmities of age, and stone and cement are crumbling from her face and forelegs.

Our source of information states that this is by no means the first time the Sphinx has needed repairs. It seems that King Thutmoses IV had some work done over 3,000 years ago, and King Ramses II of the 19th Dynasty ordered some patching a mere 2,900 years ago. Too bad they can't locate the bunglers who did that last job and make 'em do it over right.

Corn

FEDERAL and state research workers in Michigan have disclosed that it may soon be practical to use corn cobs as filler in concrete construction. We foresee difficulties ahead if cob-filled concrete ever becomes popular. Whenever "cobcrete" is mentioned in conversation, it will be necessary to ask the speaker if he really means "cobcrete," or just has a head cold. If the whole business weren't so revoltingly corny, we might suggest "corncrete" as a possible alternative.

In 1951, old and satisfied customers bought 76% of CLARK'S record-breaking civilian production of materials-handling machines. The other 24% went to more than 1700 new customers, many of whom switched to CLARK

To learn more about why CLARK retains its customers and steadily gains new ones, fill out the coupon, attach to your business letterhead and drop it into the mail.

CLARK
ELECTRIC AND GAS POWERED
FORK TRUCKS
AND POWERED HAND TRUCKS · INDUSTRIAL TOWING TRACTORS

CLARK EQUIPMENT COMPANY • Battle Creek 90, Mich.
Please send: ☐ Material Handling News ☐ Movie Digest ☐ Basic Facts
☐ Please have representative call.
Name _____
Firm Name _____
Street _____
City _____ Zone ____ State ____

Hotfoot for a Hopper

Give that stubborn, 'stuck' material a hotfoot with a CLEVELAND Type F Air Vibrator and get it moving on the double.

Whether it's cement or lumpy or powdered materials, the Type F will move it intermittently or continuously, through bins, chutes, hoppers, screens, storage tanks, etc.

29 different mountings, 14 piston diameter sizes... Standard and Quiet air-cushioned types. BIN stuck lately?

THE CLEVELAND VIBRATOR COMPANY
2710 Clinton Ave. • Cleveland 13, Ohio

☐ Send your Catalog 108 (Air Cushioned) and 105 (Standard)

Name_____

Company_____

_____

Street_____

City_____

State_____

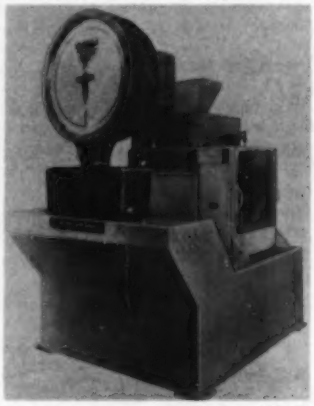
THE CLEVELAND VIBRATOR COMPANY
2710 Clinton Ave. • Cleveland 13, Ohio

NEW MACHINERY and SUPPLIES

● Automatic Proportioner

A scale that automatically weighs and proportions from 2 to 12 separate ingredients has been brought out under the trade name "Select-O-Weigh" by the Richardson Scale Company, Clifton, N.J.

The unit consists of an electronic circuit, an automatic scale, and a pendulum dial scale. The scale operates from



a control panel where the quantities of the various ingredients are set on dials. These control the automatic weighing in sequence of the materials. The controls provide for versatility in the selection and delivery of the materials, either consecutively or cumulatively.

The Select-O-Weigh is adapted for large or small operations and for a variety of ingredients.

● Gondola Unloader

An unloader for gondola cars has been announced by the Rajon Company. The unloader consists of a cradle that rides along the rim of the car on rollers. Suspended from the cradle is a triangular-shaped bucket elevator that loads along the bottom of the car and elevates the material for discharge onto a belt conveyor. The elevator is suspended from the cradle by cable and is adjusted by a hand winch.

Material from the bucket elevator is carried past the side of the car by a belt conveyor and discharged into the storage area. The unloader is placed on the car by a boom or a crane and is then operated by one man who moves the cradle along the car rim and adjusts the depth of the elevator. The buckets and conveyor are 12 in. wide, and are said to be able to unload a car in about 3 hours. Gas or electric models are available.

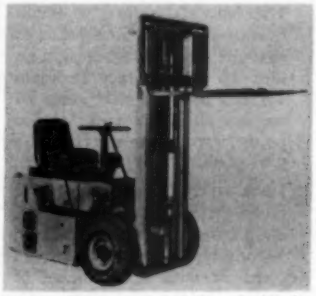
The Rajon gondola unloader is distributed by M.F.I., 1357 Sedgwick Street., Chicago 10, Ill.

● Heavy-Duty Lift Truck

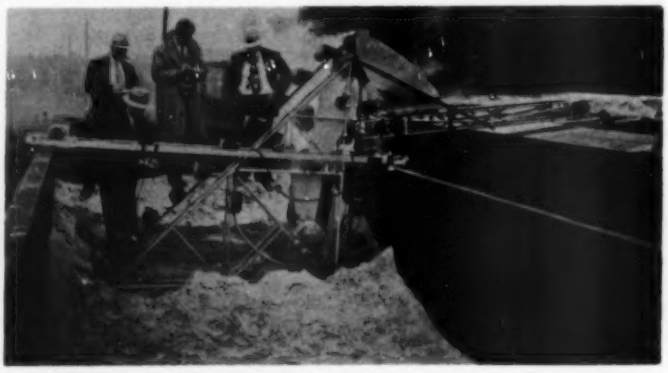
The "Power King" series of fork lift trucks has been added to the line of the Tracto-Lift Company, 2011 Baltimore Avenue, Kansas City, Mo. This line consists of three heavy-duty models with 10,000 to 15,000 lb. lifting capacity and fork lengths from 36 to 108 in. The Tracto-Lift is based on a standard heavy-duty tractor and has the tractor's ability to negotiate slopes, soft ground, rough surfaces and unpaved areas. Oversize tires add to the traction and power of the machines.

● Free-Lift Upright

A free-lift upright for use on the Model 20 Hyster lift truck has just been announced. The free-lift assemblies are available in 7-ft. 8-in. and 9-ft. 8-in. lift



heights. They are especially valuable for use in loading and unloading operations under low ceilings and whenever there



is limited head room as lifting of the load does not increase the total height of the unit.

The free-lift models are products of the Hyster Company, 2902 N. E. Clackamas Street, Portland 8, Ore.

The Frank G. Hough Company, Libertyville, Ill., for the second consecutive year, was selected to receive the Putnam Award "for the best use of industrial advertising. . . in making more effective the selling of products or services to industry".

The award was presented to Raymond P. Wiggers, advertising manager, by the donor, Col. Russel L. Putnam Publishing Company, Chicago, Ill. Attending the presentation, which was made during the National Industrial Advertisers Association's convention in Chicago last June, were Ervin R. Abramson and Ray B. Thomas of Milwaukee, Wis., who are associated with Ervin R. Abramson, Advertising, the firm's agency. Cash awards were also presented to Mr. Wiggers and Mr. Thomas.

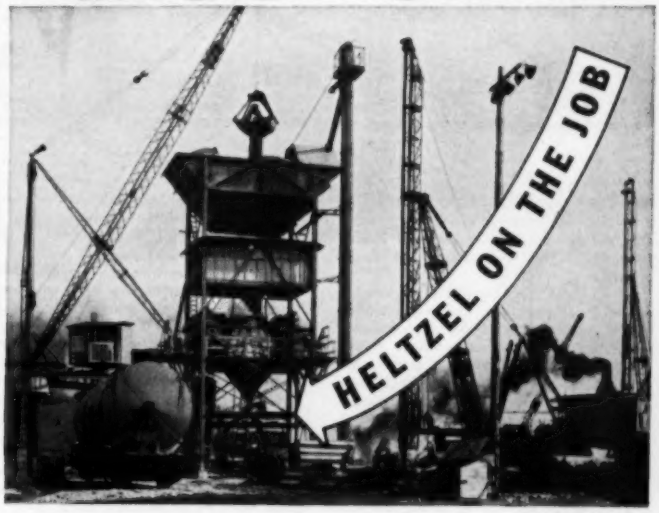
• R. P. Wiggers, Hough advertising manager, left, being congratulated by Col. Putnam, while E. R. Abramson and R. B. Thomas smile their approval.

According to a recent announcement, a concern formerly known as the Combustion By-Products Company has changed its name to the Chicago Fly Ash Company. Officials stated that the new name will more easily identify the company with its product. Executives of the firm include the following: Craig G. Cain, president; J. D. Mollendorf, vice-president; C. E. Lovewell, sales manager; Norman H. Withey, technical representatives and A. E. Hanshaw, traffic manager. Offices of the company are at 228 North LaSalle Street, Chicago, Ill.

A. J. Cole recently sold his concrete block plant near Chillicothe, Mo., to Stanton and Moore of Fremont, Nebr. and Wichita, Kans. Under the new management the facilities will be expanded, due to a constantly increasing demand for concrete block in this area. Jerry Cole, son of the former owner, has been retained by the new owners. Stanton and Moore have been operating block and stave plants in Nebraska for several years under the firm name of the Nebraska Crib and Silo Company.

Heltzel BUILDS IT BETTER

HELTZEL HELPS
CONSTRUCTION DOLLARS
GO FURTHER



with
RAYMOND CONCRETE
PILE COMPANY
at
GREAT LAKES
STEEL
CORPORATION

PROBLEM: High capacity batch plant to simultaneously charge both a pumpcrete operation and a fleet of transit mix trucks.

ANSWER: Heltzel engineered batch plant that worked both pumpcrete and transit mix operations with practical perfection and helped Raymond Concrete Pile Company run ahead of schedule.

• The installation consists of a basic Heltzel 300-ton, 4-compartment plant (three 70-ton aggregate compartments; one 311-bbl. cement compartment); a 70' high, 250-bbl. per hour bulk cement elevator; a 1000-bbl. bulk cement recirculator with 33' 6" screw conveyor; a 2-cubic yard batcher to charge two tilt mixers—front end charging; special columns and braces to take care of height.

ASK FOR HELTZEL BULLETIN K-37 DESCRIBING PLANTS AND ENGINEERING SERVICE FOR CENTRAL MIX, TRANSIT MIX AND CONCRETE PRODUCTS OPERATIONS.

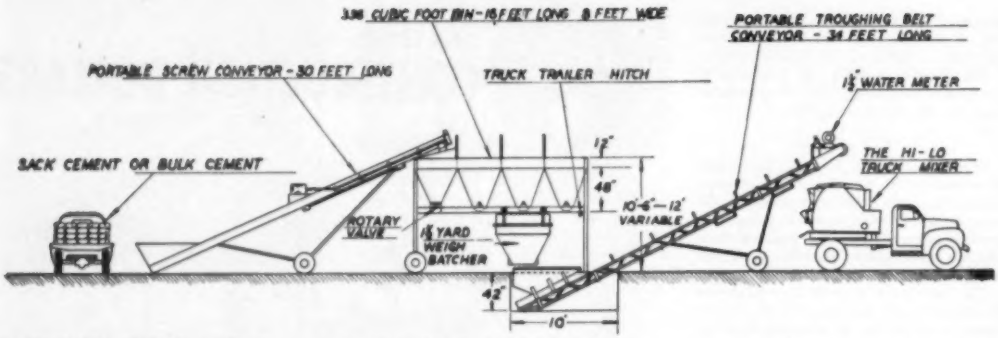
Heltzel BUILDS IT BETTER

The Heltzel Steel Form & Iron Company

Construction Equipment Since 1910

WARREN, OHIO

Flex-Plane



● Portable Batching Plant

A portable batching plant is the latest item to be offered by Material Handling, Inc., 4985 Fyler avenue, St. Louis 9, Mo.

The combination consists of a portable four-compartment bin, utilizing a trolley weigh batcher. One of the compartments is a covered cement bin having a rotary valve discharge. A portable screw conveyor is used to charge the cement compartment with either bulk cement directly from a dump truck, or as dumped directly from bags from a flat-bottom truck. The aggregates and cement, as weighed together, are discharged into a hopper on the end of a 34-ft. portable belt conveyor. At the head end of the conveyor an automatic water meter is installed with the feed line as a permanent fixed part of the conveyor. This is connected by a flexible connection at the ground to the water supply.

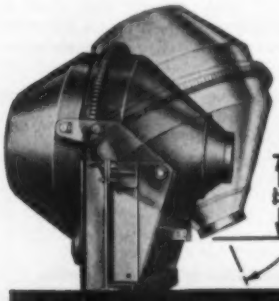
The aggregates bins are charged from ground storage stockpiles by a front-end loader or other equipment.

The entire plant can be easily towed behind trucks to new locations and set with the minimum of work. The plant is designed for one- or two-man operation where a quantity of concrete must be produced at some distance from the main plant or for a temporary job.

George C. McClure, 46, executive vice-president and general manager of Hercules Steel Products Corporation, Galion, Ohio, died recently of a heart attack.

At a conference to be held at the University of California, Los Angeles, on November 14 and 15 the latest developments in design of prestressed concrete structures will be reported. The meeting is to be sponsored by the University of California Extension, the California Institute of Technology, and the University of Southern California.

William P. Smith Jr., Willow Run, Mich., was awarded the first prize of $1,000 in the small masonry home design competition sponsored by the Concrete Products Association of Detroit. Other prizes totalling $2,200 were awarded to 12 other contestants.



TILT-UP

CLEAN UP with

FOR CONVERTING TO CENTRAL MIX

As it requires less headroom, the TILT-UP SuPREMIXER is the only mixer feasible in most plants. It's easy to install, no raising of the plant or lowering of drive.

FOR A PACKAGE PLANT

Reduced headroom requirement means reduced height, construction and power costs. Efficiently permits dry batch in one tank, central mix in the other.

FOR A SEMI-PORTABLE PLANT

Crane feeding is easy with SuPREMIX. Separate A frame mounting with bin structures bolted for quick, easy set-up provide real flexibility for your rush defense jobs.

Only the SuPREMIX TILT-UP, 3-3½ yard hydraulically controlled mixer can give you *all* these advantages: lower headroom requirements—steeper discharge of 65°—no segregation—reduced thrust—and virtually fixed discharge. The hydraulic system is part of the unit—no costly compressor to buy. The unique features of this mixer make it the ideal mixer...

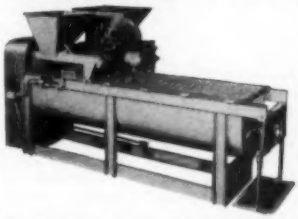
Aggregate Bins Cement Bins Cement Storage Elevators Conveyors Ready Mix Plants Expressway Semi-Portable Plants Dry Batch Plants

Manufactured by

L. BURMEISTER CO., 4535 W. Mitchell, MILWAUKEE 14, WIS.

***Jones* (formerly Yoder)**

CONTINUOUS MIXER



Embodies many successful new features, such as positive, non-clogging, vibrating belt feed, insuring constant volume of aggregate regardless of moisture content—no need for costly weighing equipment and moisture determinations.

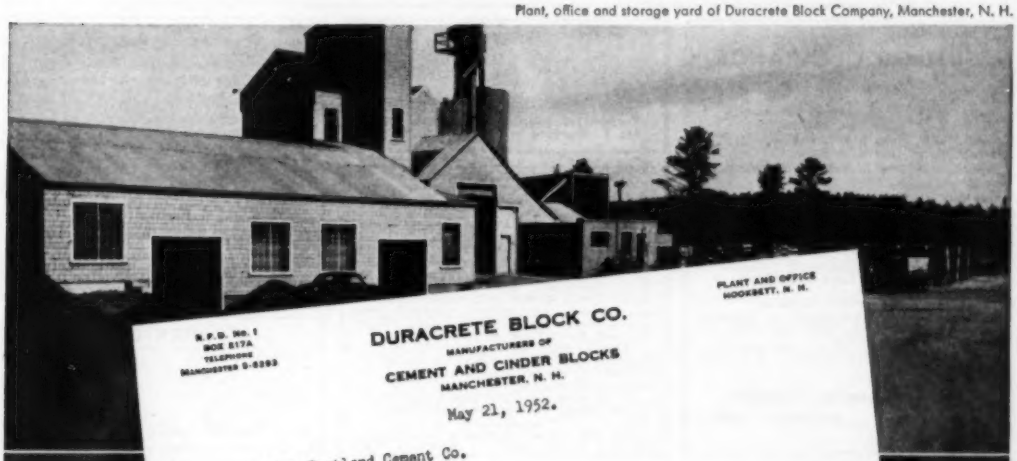
Accurate proportioning through adjustable aggregate gates. Variable Speed drive for requirements ranging from 5 to 20 cu. yds. per hour. Cost only half that of batch mixer. More thorough mixing—gives up to 50% higher strength than 5-minute batch mix. Special advantages for lightweight aggregates. Illustrated literature and other information on request.

***J. A. Jones* CONCRETE MACHINERY**

108 Morning Road, Pittsburgh 34, Pa.

Better-than-ever Blocks with LEHIGH EARLY STRENGTH AIR-ENTRAINING CEMENT

Plant, office and storage yard of Duracrete Block Company, Manchester, N. H.



R.F.D. No. 1
BOX 817A
TELEPHONE
MANCHESTER 5-8203

DURACRETE BLOCK CO.
MANUFACTURERS OF
CEMENT AND CINDER BLOCKS
MANCHESTER, N. H.

PLANT AND OFFICE
HOOKSETT, N. H.

May 21, 1952.

Lehigh Portland Cement Co.
Young Building
Allentown, Pa.

Gentlemen:

In 1945 we started manufacturing concrete blocks on a hand machine and now operate two Besser Vibrapac's, producing twelve thousand eight-inch blocks per day. Our main objective has been to associate the name "Duracrete" with quality, and you will probably be interested to know that we have been able to maintain our standard of quality only when using Lehigh High Early Cement.

About two years ago we started using High Early Strength - Air Entraining Cement with still better results, such as cleaner cut edges and corners, less breakage, better yield and higher compressive strength.

We feel that a product must be made worthy of selling if a reputable industry is to be built, and that is why we have always tried to make a quality unit. Lehigh Cements have helped us do this and we are indeed grateful.

Very truly yours,

Dante V Donati

Duracrete Block Co.
Inc.

Modern, well-arranged office showing artistic block partition at left.

LEHIGH CEMENTS

LEHIGH PORTLAND CEMENT COMPANY
ALLENTOWN, PA. • CHICAGO, ILL. • SPOKANE, WASH.

LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENTS • LEHIGH MORTAR CEMENT

Concrete Manufacturer Classified Section

431 S. DEARBORN ST., CHICAGO 5, ILL.

Advertising Rate Per Issue: $10.00 a Column Inch. Lower Rates on a Contract Basis — Write for Rate Card.

[Additional Classified Ads on Pages 235-243]

SUMMER CLEARANCE

SHOVELS & CRANES

Insley "K-14" ¾ yd. Dragline, Reconditioned
Insley "K-12" Used ½ yd. Dragline
Insley "K-12" Used ½ yd. Trench Hog
Insley "K-10" Used ¾ yd. Shovel
Bantam Used Drag & Hoe, on GMC 6x6

TRANSIT MIXERS

Rex 3 yd. Used Ill-Discharge Moto-Mixer.
Rex "27E" Paver. Big Drum. Reduced to $3250.00.

MISCELLANEOUS

Martin "225" 10-Ton Tag-A-Long Tilt-Top Trailer, slightly used.
Schramm "90" Used Portable Compressor.
Universal Port. Pulverizer Plant: #5 Pulverizer, Murphy "ME-66" diesel power, plate feeder, 4 x 8 screen, etc. Pneumatics.
Cummins Diesel — Electric Plant, 50 KW, Priced right.

EIGHMY EQUIPMENT COMPANY

120 S. PIERPONT ROCKFORD, ILLINOIS

MINERAL COLORS

for

BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.

BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

WANTED

We need a lifter truck (finger lift) Cap. 4,000 lbs. or over, pneumatic tires, in good condition.

Specify best price.

Box No. T-8, c/4 Concrete Manufacturer
431 S. Dearborn St., Chicago 5, Illinois

UNUSUAL OPPORTUNITY TO OWN AND OPERATE BESSER VIBRAPAC BLOCK PLANT

One of the best plants—located in a busy section of Eastern Pennsylvania. RR siding. Large, well established. Second machine No. 9 Joltcrete with pallets. Fully complete with Blaw-Knox Stell four compartment bins, weightbatcher, bulk cement equipment. Nine Kilns with new boiler & oil burner. Lintelator, crusher, two towmoters, one Clark lift truck, Scoopmobile, Five motor trucks.

Would cost well over $225,000 to duplicate. $20,000 recently spent to modernize plant. Priced to sell—Good reason for selling.

Some cash required and a successful block plant background essential.

Wire or write:
BOX NO. T-6, c/o The Concrete Manufacturer
431 South Dearborn Street Chicago 5, Illinois

Excellent Ready Mixed Concrete, block & light contracting for sale, ill health—reason for selling.

Box No. S-15, c/o Concrete Manufacturer
431 S. Dearborn St., Chicago 5, Ill.

Wanted To Purchase

Model "R" McCracken Pipe Machine Together with or without mixer and equipment.

Box No. S-10, c/o Concrete Manufacturer
431 S. Dearborn Street, Chicago 5, Ill.

VERMICULITE

Several desirable exclusive territories available. Expand vermiculite at your plant for aggregate, insulation, fertilizer, etc., under license of nationally active corporation. Offers many possibilities for aggressive Concrete Products organizations. Write to VERMICULITE—Box No. S-12 c/o The Concrete Manufacturer, 431 South Dearborn St., Chicago 5, Ill.

WANTED

Engineer, preferably in early 30's, familiar with Quarry, Crushing, Drying & Conveying Operations and Equipment. Furnish Resume. (Confidential). Require Travel. Apply:

Box No. R-5, c/o Pit and Quarry
431 S. Dearborn Street, Chicago 5, Illinois

YOURS TO SERVE

If you have not found the equipment you are looking for, the research dept. of The Concrete Manufacturer can and will gladly assist you. Tell us what it is . . . Write to

Research Dept.
C/O The Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Illinois

PIT AND QUARRY

Research Department

538 South Clark St., Chicago, Ill.

Please send me catalogs and Prices concerning the following items checked below:

- ☐ Admixtures, Concrete
- ☐ Agitators, Slurry
- ☐ Aggregate-Bituminizing Plants
- ☐ Air Cleaners
- ☐ Air Compressors
- ☐ Asphalt Mixing Plants
- ☐ Asphalt Mixers
- ☐ Bag Filling and Weighing Machinery
- ☐ Bags, Cloth
- ☐ Bags, Paper
- ☐ Belts, Steel
- ☐ Bargos, Steel
- ☐ Batching Equipment
- ☐ Belt Dressing
- ☐ Belt Fasteners
- ☐ Belting, Conveyor and Elevator
- ☐ Belting, Transmission
- ☐ Belt Tighteners
- ☐ Bin, Gates
- ☐ Bins
- ☐ Blasting Powder
- ☐ Blocks, Friction
- ☐ Bodies, Motor Truck
- ☐ Buckets, Clamshell
- ☐ Buckets, Conveyor and Elevator
- ☐ Buckets, Dragline
- ☐ Buckets, Orange Peel
- ☐ Cableways, Skeleton
- ☐ Calcining Machinery
- ☐ Caps, Blasting
- ☐ Car Dumpers
- ☐ Car Pullers and Movers
- ☐ Carriers, Belt
- ☐ Cars, Dump
- ☐ Cars, Kilo
- ☐ Castings
- ☐ Cement Plants, Bulk
- ☐ Chains, Conveyor and Elevator and Dredge
- ☐ Chains, Power Shovel, Crane
- ☐ Chains, Transmission
- ☐ Classifiers
- ☐ Clutches
- ☐ Clutches, Magnetic
- ☐ Concrete Block Machines
- ☐ Concrete Brick Machines
- ☐ Concrete Joist Machines
- ☐ Concrete Stave Machines
- ☐ Concrete Plants, Ready Mix
- ☐ Cones, Washing
- ☐ Connectors, Wire Rope
- ☐ Conveyors, Apron
- ☐ Conveyors, Belt
- ☐ Conveyors, Concrete
- ☐ Conveyors, Screw
- ☐ Conveyors, Skip
- ☐ Coolers
- ☐ Coupling, Flexible
- ☐ Cranes, Locomotive
- ☐ Cranes, Overhead Traveling
- ☐ Cranes, Truck
- ☐ Crushers, Cone
- ☐ Crushers, Gyratory
- ☐ Crushers, Hammer
- ☐ Crushers, Jaw
- ☐ Crushers, Ring
- ☐ Crushers, Roll
- ☐ Cutter Heads, Dredging
- ☐ Derricks
- ☐ Draglines, Cableway
- ☐ Draglines, Revolving Boom
- ☐ Dredges, Hydraulic
- ☐ Dredges, Ladder
- ☐ Drills, Air
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- ☐ Drills, Diamond
- ☐ Drills, Hand Hammer
- ☐ Drills, Sharpening Machinery
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- ☐ Kettles, Calcining
- ☐ Kilns, High Pressure Steam
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- ☐ Kilns, Vertical
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- ☐ Loaders and Unloaders, Box Car
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- ☐ Mills, Compartment
- ☐ Mills, Tube
- ☐ Mixers, Concrete
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- ☐ Motor Trucks, Ready-Mixed Concrete
- ☐ Nozzles
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- ☐ Oilers, Pallet
- ☐ Pallets, Concrete Block
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- ☐ Skips
- ☐ Sleeves, Dredge
- ☐ Slugs and Balls, Grinding
- ☐ Speed Reducers and Gears
- ☐ Sprockets
- ☐ Stokers
- ☐ Tanks, Concrete and Steel
- ☐ Tanks, Sand Settling
- ☐ Testing Equipment
- ☐ Thickeners, Slurry
- ☐ Track, Portable
- ☐ Track Shifters
- ☐ Tractors, Crawler
- ☐ Tramways, Aerial
- ☐ Trippers, Belt
- ☐ Trippers, Tramway
- ☐ Unloaders
- ☐ Valves
- ☐ Vibrators, Electric
- ☐ Washers and Scrubbers, Sand, Gravel, Stone
- ☐ Weighers, Automatic
- ☐ Welding Machines
- ☐ Welding Rods
- ☐ Wheel Cars
- ☐ Winches
- ☐ Wire Cloth

Firm Name .....*Individual* .....

Address .....*City* .....*State*.....

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LOWER COST

PACKER-HEAD WINGS

Proved to last as long or longer—yet cost considerably less. Write for prices.

TEXAS FOUNDRIES
LUFKIN, TEXAS

100,000
PRESSED STEEL PALLETS
In Stock

Send tracing or pallet for quotation.

GENERAL CONCRETE EQUIPMENT CO.
307 Hunter Street
Dept. PQ
Gloucester, New Jersey

FOR SALE

Quincy 10 horse power air compressor, rebuilt, like new. $800.00.

16 Cu. ft. Dunn Mixer. $495.00.

H. G. RAPLEY
931 Wall Street Port Huron, Michigan

SUPERINTENDENT WANTED

Established large Central New York block producer has opportunity for plant superintendent. Working knowledge of Vibrapac machines, high quality production and materials handling methods preferred, but not demanded. Good starting salary and incentive plan for the man who is capable of maintaining top-level operating efficiency. In reply furnish data as to experience, age, education, and health. Golden opportunity for the right man.

Box S-8,
c/o The Concrete Manufacturer
431 South Dearborn St., Chicago 5, Ill.

FOR SALE

Complete Block Plant in Westchester County, N. Y.. Good market—K3 Besser machine—30 cu. ft. Mixer—3000 Pallets—50 Racks—Clark platform truck—Fork truck—Welding machine and two delivery trucks—plant in operating condition—For machinery and business $7000.00. Will sell separate items. Half cash.

BOX NO. S-7, c/o The Concrete Manufacturer
431 South Dearborn Street Chicago 5, Illinois

FOR SALE

No. 9 Joltcrete, 45% void pallets, racks, turn table, and mold boxes for manufacture of 4", 6", 8", and 12" concrete block.

BOX NO. S-2, c/o the Concrete Manufacturer
431 South Dearborn Street Chicago 5, Illinois

A REAL OPPORTUNITY
BESSER VIBRAPAC PLANT

To own—or lease on per block basis.

Modern plant. Excellent location in eastern Penna.

Complete with Besser Vibrapac overhead bin, bulk cement and 2 Tow-motor lift trucks.

Some cash deposit required and successful block plant operation.

BOX NO. T-15
c/o CONCRETE MANUFACTURER
431 S. Dearborn Street Chicago 5, Ill.

FOR SALE

1—No. 7 Joltcrete Block Machine in A-1 Shape. Free with 4"-6"-8" and 12" Mold boxes, all in excellent shape. Also Automatic Power Carriage, new. Vibrator and Feed drawer, almost new. All motors and automatic switches included. All you buy is the pallets. List 2200—4", 2000—6", 2500—8", and 1375—12". This machine can be seen in operation until about June 20th. Phone or write;

WEBB BLOCK COMPANY
Scottsboro, Alabama
Day phone 96 — Night phone 370

FOR SALE

One (1) 4½ cu. yd. latest model Blaw-Knox Truckmixer, slightly used, new guarantee, bargain. Call or write **W. P. Favorite Company, 6001 East Seven Mile Road, Detroit 34, Michigan —Phone TWinbrook 1-6000.**

CEMENT COLORS

Write for free samples and prices of "LANSCO" CEMENT COLORS produced in 24 attractive shades. Packed in bulk and in 1 lb. and 5 lb. packages.

manufactured by
LANDERS-SEGAL COLOR CO.
71 Delevan St. Brooklyn 31, N. Y.

BLOCK CALCULATOR

Brand New Advertising Necessity that figures number of blocks needed for structures. Printed with your advertising. So simple any one can use it. Also complete line of other advertising items. Write for catalog.

GERSON COMPANY
97 Dearing Road, Mattapan, Massachusetts

BLOCK PLANT FOR SALE

2 complete cement block machines, racks, pallets—hydraulic hand truck, clipper masonry saw — everything needed to carry on business — only one in town. Priced for quick sale $15,000.00 including building supplies, steel window sashes, metal screens, glass paint, etc. or will sell equipment separately.

A. HEILMAN
603 S. Shields Knox, Indiana
Telephone 1273

FOR SALE

1 CDB #27 Dunn machine
14 racks, capacity 720 bricks
28 racks, capacity 840 bricks
1 2½ cu. ft. mixer, plus spare bull and pinion gears
1 extra set of blades for mixer
1 14 cu. ft. mixer, plus extra blades
1 Stearns skip hoist
1 Stuebing electric lift truck, plus extra battery approximately 15,000 pallets for the above racks.

Box No. T-9
c/o Concrete Manufacturer
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

1—1950 Model Gocorp Junior
1— 4" Mould Box—no pallets
1—16" Mould Box—no pallets
Excellent Condition $4,000.00
1—1947 Model 29 Joltcrete
1—5 H.P. Air Compressor air operated offbearer
1—8" Mould and 5,000 8" cored pallets (steel)
1—4" Mould Box and 2,000 4" cored pallets (steel)
1—16" Mould Box
2—Turn Tables
75—Racks
8" Mould box brand new purchased in March, 1952
Also some spare parts..... $4,500.00

Anthony Coal & Supply Company
5801 Southern Boulevard
Youngstown, Ohio

"FOR SALE"

1450 Marine Plywood Pallets (18"x18"x½")

20 welded steel racks, 48 blocks for cored pallets.

1 Dunn Automatic Drain Tile Machine complete with motors and fittings to make 3" and 4" tiles.

All equipment in A1 condition.

Norman Block & Tile Company
229 So. Central Avenue
Duluth 7, Minnesota

ADVERTISE YOUR "WANTS" AND SURPLUS EQUIPMENT

CONCRETE MANUFACTURER
431 S. Dearborn St., Chicago 5, Ill.

UNBREAKABLE

PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

extra white

TRINITY WHITE
Portland Cement

Use Trinity—the *whitest* white cement. A true portland cement that meets ASTM and Federal specifications. Trinity is first choice for architectural concrete units, terrazzo, stucco, paint and other uses. Gives a pure white and true colors when pigments are added. Ask for Trinity. General Portland Cement Co., 111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas; 816 W. 5th St., Los Angeles; 305 Morgan St., Tampa; Volunteer Bldg., Chattanooga.

TRINITY WHITE
is a
True Portland Cement!

as white as snow

Dixon CONCRETE MACHINERY

CONCRETE PIPE MACHINES

The Plant behind the Product...

Quick delivery of precision-made Dixon Concrete Pipe Machines, and *immediate* delivery of all wearing parts, is assured by the facilities in this modern, fully equipped plant.

All machines are thoroughly tested before delivery; wearing parts are precision-machined, gauged and held to close tolerances for quick, easy interchangeability.

Write *today* for complete information on Dixon Model "C" Concrete Pipe Machines and associated equipment.

HOUSTON CONCRETE MACHINERY CO.

Plant: 6600 Washington Ave.
Office and Mailing Address: 116 Heights Blvd.
HOUSTON, TEXAS

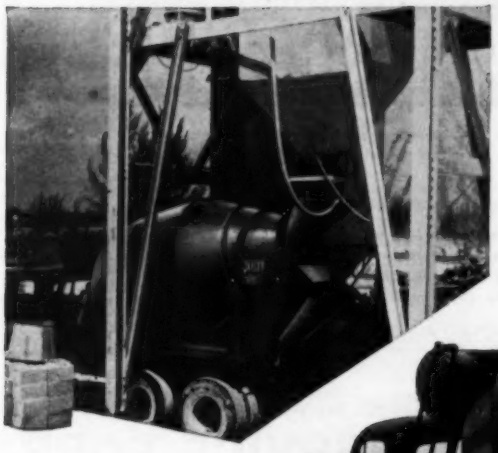
Manufacturers of:

Dixon Pipe Machines
Pipe Bend Machines
Dixon Mixers

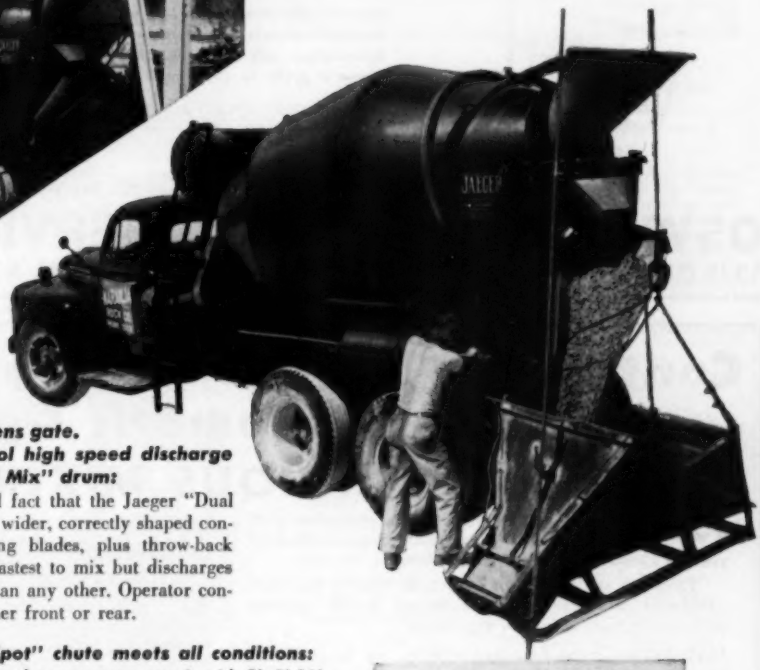
Dixon CONCRETE MACHINERY

Septic Tank Forms
Dixon Conveyors
Off-Bearing Carts

Fast, clean charging and discharge is just one advantage of the Jaeger "Mix Plus"

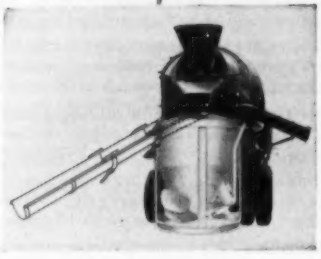


No cement blow-back, no spillage of water when you charge this open-end loader: Rubber-faced semi-circular gate completely closes lower half of drum opening while drum revolves for charging. Also prevents any spillage while traveling, no matter how steep the grades you climb on-or-off the road.



Flip of a lever opens gate.
Dual levers control high speed discharge of Jaeger's "Dual Mix" drum:
It is a demonstrated fact that the Jaeger "Dual Mix" drum, with its wider, correctly shaped continuous spiral mixing blades, plus throw-back blades, is not only fastest to mix but discharges faster and cleaner than any other. Operator controls drum from either front or rear.

3-piece "To-the-Spot" chute meets all conditions:
Places concrete where the customer wants it with 5′, 8′ 10′, 13′ chute lengths — or swings clear away for discharging into extra big buckets or high forms.



Jaeger offers these advantages PLUS light weight for biggest legal payloads: "Mix Plus" models mount on any standard make of truck, haul the largest possible legal payload, yet are built for 8 to 10 years' service instead of the 4 or 5 years' life of cheaply constructed units that weigh as much or more and cost as much or more to buy. "Comatic" hydraulically actuated transmission gives finger-tip control. Open or sealed end loaders; water system to suit.

For full information, see your Jaeger distributor or write us

THE JAEGER MACHINE COMPANY

602 Dublin Avenue, Columbus 16, Ohio

World's largest builders of TRUCK MIXERS, AGITATORS • PUMPS • COMPRESSORS • CONCRETE MIXERS • PAVING MACHINES

. . . *why ask a crystal gazer . . .* ?

how to boost block production and profits

. . . *consult expert* OSWALT SERVICE

You can look into the business future with confidence if you use Oswalt Service to increase the output of your Vibrapac machine.

Here is what Oswalt Services does for you:—

Insures high-speed production without sacrifice of quality
Maintains smooth operation and maximum plant efficiency
Saves labor, cuts costs and reduces equipment maintenance
Shows a profit on your investment.

Write for further details and find out how Oswalt Service pays off by maintaining top level efficiency of your Vibrapac machine.

Valuable information available in the new booklet, "Oswalt Service"

Many satisfied customers operating more than seventy machines

Write for name of nearest Oswalt-Serviced plant

OSWALT ENGINEERING SERVICE CORP.

1335 Circle Ave., Forest Park, Illinois • Phones: EStebrook 8-3666—FOrest 6-3898

Continuous Profits Through Efficient *Automatic* Operation

KENT CONTINUOUS MIXERS

perform their function with the *greatest known efficiency* and do so *with the least possible attention.*

They are *not an expense* but an *investment that pays dividends* by continuously assuring greater profits through consistently low unit costs.

FEEDING—Up to four aggregates can be fed with the proportion of each controlled by an adjustable gate.

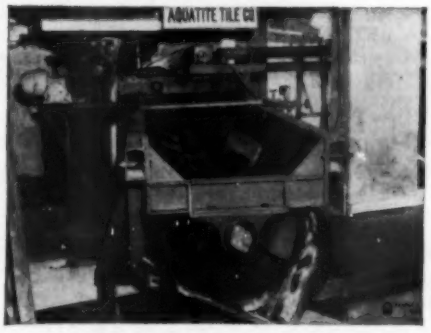
Once set, readjustments are rarely required for the same aggregates. Calibrations permit the recording of adjustments for future quick reference and guidance.

MIXING—The number of mixing paddles, their positions on the shaft and the angles of the blades, are all variable.

The amount of "slicing" and "turning over" and the length of time the aggregate is retained during the mixing cycle are variable up to 12 minutes.

WATERING—This important operation is variable, too.

The aggregates can be pre-wet or watered during the mixing process as desired.



DISCHARGING is automatic, too. There is no timing, no watching and no levers to operate as with batch mixers.

Isn't this machine worthy of your immediate investigation?

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio — Concrete Products Machinery Since 1925

SOFFIT BLOCK

(Filler for Floors and Roofs)

Opens Up New Markets

- FIRESAFE
- PERMANENT
- RIGID
- ECONOMICAL

Gives FLOORS and ROOFS Lifetime Permanence . . . Cuts Construction Costs!

Your profits will greatly increase by making and selling Soffit Filler Block for floors and roofs. Soffit Block enables your customers to make an ENTIRE structure firesafe and permanent, and do it economically.

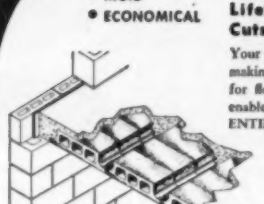


Illustration at left shows integral joist and slab of reinforced concrete. Meets standard building code requirements. Recommended by architects and builders.

BESSER VIBRAPAC

Soffit Filler Block are made on the same machine that produces quality concrete load-bearing block for walls, in all styles and sizes, using one set of Plain Pallets. Write for literature and names of Vibrapac plants making Soffit Block.

BESSER MANUFACTURING CO.

ALPENA, MICHIGAN, U. S. A.

Complete Equipment for Concrete Products Plants

A 6031-¼ A

truck-man runs 18,000 HOURS without overhauling

Here's what Knox Concrete Products, Inc., Knoxville, wrote us when they placed an order for replacement parts recently:

". . . We are not only well pleased but we do not believe there is a piece of equipment on the market which would serve our requirements any better . . . Our normal load would probably run in the neighborhood of 4000 lbs. . . . We now have four Truck-Men . . . that run possibly *20 hours every day continuously* . . . The cost of operating a Truck-Man is certainly extremely low, as it uses very little gas and oil . . . We have had very little maintenance on this equipment."

". . . After six years at approximately 10 hours per day steady running I find it necessary to rebuild the majority of gears, sprockets and other movable parts on one Truck-Man and prepare to do so on another . . ." says Cement Block Industries, Coral Gables, Florida.

What more need we say? That last statement works out to approximately 18,000 hours of trouble-free operation. What would the record show if they had been using the *new* Truck-Man with its husky 5.8 h.p. Wisconsin engine? It's Truck-Man's low weight to payload ratio combined with rugged power that makes possible its unequalled efficiency in block-plant operation. You burn only a gallon of gas on most 8-hour shifts yet spot the heaviest racks in jig-time. Rubber cushioned ride, hydraulic lift, smooth start and stop mean no costly checking of blocks. Lower costs from purchase through maintenance and big savings in manpower—everyday—for years—make Truck-Man your *first* necessity for block handling. Available in skid, pallet, platform and *New* tractor models.

Send for full details in our new 1952 catalog.

truck-man Div. of The KNICKERBOCKER CO.

571 Liberty Street • Jackson, Mich.

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Title_____

Address_____

City_____ Zone____ State_____

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Sells Your Products . . . Increases Your Profits

- Daily testing of all concrete and concrete products increases yield, profit and customer confidence.

Write for full information

FORNEY'S Inc. 203 ELM ST.
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"Build 'em and Reap" EXTRA PROFITS

QUALITY SEPTIC TANKS
made with
CARPENTER

. . . Equipment are in demand everywhere. Take advantage of this growing market — get big production of premium units, economically made. One *man* handles the Carpenter Delivery Rig. We have satisfied customers from coast to coast. *Write for details.*

CARPENTER MANUFACTURING CO.
Phone 28938 — R.F.D. No. 1, Box 470 — Richmond, Virginia

Columbia BLOCK MACHINES "lead the field"

YES, COLUMBIA LEADS THE FIELD in those key features which spell the difference between profit and loss in the highly competitive concrete block operation.

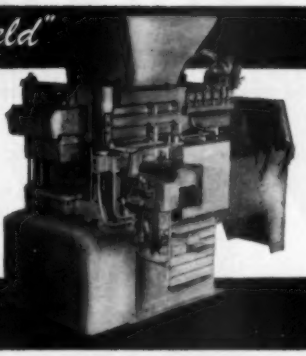
COLUMBIA MACHINES ARE COMPACT, rugged...easy to service and maintain. Moving, rotary parts have needle bearings and hardened pins; are enclosed for protection from grit.

COLUMBIA MACHINES OFFER GREAT FLEXIBILITY, from fully automatic to manual operation at the flip of a switch. That's an advantage when changing molds, or starting or ending a shift.

COLUMBIA MACHINES ARE SIMPLE IN DESIGN, producing precision, modular blocks from more than 200 types of molds.

- Low cost initial investment
- Compact, rugged construction
- Standby manual controls
- Vibration under pressure
- Uses plain steel or wood pallets

SALES AND SERVICE THROUGHOUT U.S. AND CANADA. Write for complete information on Columbia line.



Columbia MACHINE WORKS
107 S. GRAND AVENUE, VANCOUVER, WASHINGTON

PRODUCES STEAM in 2 minutes

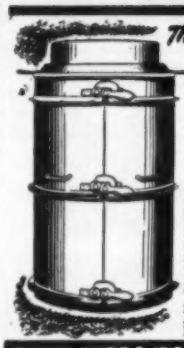
LITTLEFORD "Kwik-Steam" VAPOR-CLARKSON GENERATOR ...for READY MIX CONCRETE

• Continuous operation of Ready Mix Concrete Plants is now assured by heating the aggregate and water with a Littleford "Kwik-Steam" Generator. 60° Concrete can be delivered safely in the coldest weather. This "Kwik-Steam" Generator produces steam from a cold start in 2 minutes' time; it gives steam only when steam is needed as the burner cycles off and on automatically. Burning low cost fuel oil, the "Kwik-Steam" Generator is economical in operation, then too, it saves up to 50% in labor as no experienced operator is necessary to run this unit. Made in sizes from 20 to 165 BHP, with either electric motor or gasoline engine. Write for Ready Mix Concrete Bulletin.

LITTLEFORD

LITTLEFORD BROS. INC.
452 E. Pearl Street, Cincinnati 2, Ohio

The "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request. Also manufacturers QUINN CONCRETE PIPE MACHINES.

QUINN WIRE & IRON WORKS 1627 12TH ST. BOONE, IOWA

TAKE STEPS *NOW* to make LARGE PROFITS from a SMALL INVESTMENT

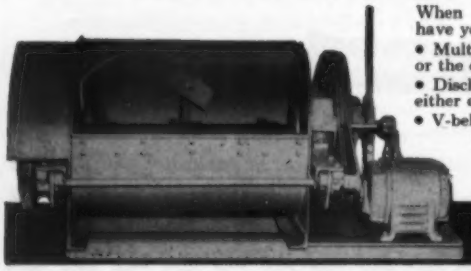
PATENTED

Pre-cast Concrete Steps

These easy-to-make, attractive steps find a ready market everywhere.
DON'T WAIT — INVESTIGATE!
A Real Business — Not a Side Line
Exclusive Territories available — Write for details.

PITTSBURGH PRE-CAST CO.
2615 W. LIBERTY AVE., PITTSBURGH 16, PA.

only MULTI-MIXER gives you a choice!



When you buy Multi-Mixer you have your choice of:

- Multi-blade paddle arrangement or the conventional spiral blades.
- Discharge door in the rear or either end, controlled front or rear.
- V-belt drive or direct drive motor, and right or left hand drive.
- Special grill guards and dust proof covers.
- Rigid stationary mounting or portable mounting.

All Multi-Mixers are of welded steel construction, in standard sizes from 3 to 60 cu. ft., and larger sizes to your specifications. Ask for Bulletin MM-11. Multiplex also makes fully automatic block machines, skip loaders, and compartment aggregate bins.

MULTIPLEX Machinery Corp • Elmore, Ohio

Check these construction practices to strengthen your market for

CONCRETE MASONRY

The first requisite for a successful concrete masonry business is making block that comply with applicable specifications for strength, dryness and absorption. However since your customers buy walls, not block, you can strengthen your market by making on-the-job inspections to promote quality construction. Use this check list:

1 See that concrete block stored on the job are protected from rain and snow.

2 See that tops of unfinished walls are covered each day to keep moisture out of cores in block.

3 Make sure that the masons do not pre-wet the block before applying mortar.

4 Discourage notching or cutting block around pipes, as this creates weak vertical sections.

5 Advise use of control joints to relieve stresses due to shrinkage and temperature changes.

6 Advise painters to let surface of caulking compound in control joints harden and then coat with shellac to prevent oils from bleeding through where portland cement base paint is to be used.

Send for free *"Concrete Masonry Handbook."* It is distributed only in the U.S. and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. 9-58, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

a CONVERTIBLE MASONRY SAW

cuts

GLAZED TILE CONCRETE SLAB STONE SLABS

Here's How...
FIRST YOU BUY A CLIPPER MASONRY SAW
THEN YOU ADD... and the "CONVERTIBLE" CART
THEN USE YOUR CLIPPER "4" WAYS
① Use as a DUSTLESS Masonry Saw
② Use as a DRY Masonry Saw
③ Slip the head from your Clipper Masonry Saw into the "CONVERTIBLE" CART and you have a Handy Concrete Saw.
④ Place it on trucks and you can cut large stone slabs or transite sheets

YOUR OWN Model HD CLIPPER IS CONVERTIBLE

MODEL HD

Now use your HD or DHD Clipper to saw Concrete or Asphalt Floors, Walks, etc., plus Stone Slabs, Transite Sheets, etc.—in addition to the countless masonry materials you're now cutting. All you need is the CHD Convertible Cart and Tracks.

FREE TRIAL 9 MODELS FROM $265

PATENTED FEATURES

SAVES MONEY ON ANY SIZE JOB!

With the Model HD you can cut . . . Glazed Tile, Concrete Block, Fire Brick, Face Brick, Stone, Glass, etc., but in an instant you can "convert" to sawing patches, trenches in building floors, walks, or drives by placing the cutting head on the "CONVERTIBLE" CART. No more fractures beyond removal lines—no more spalling.

But wait . . . if you have bulky stone slabs, "Transite" or large refractories to cut . . . just place the "CONVERTIBLE" CART on TRACKS and operate as a TRACK SAW!

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CLIPPER BLADES

The finest WET & DRY Abrasive, "B-R" (Break-Resistant), and Bronze, Nickel and Steel Diamond Blades in over 100 specifications to answer any cutting problem.

SERVING THE WORLD AS THE WORLD'S LARGEST MANUFACTURER OF MASONRY SAWS

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☐ TRACK SECTIONS ☐ HEAVY DUTY CONCRETE SAWS

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STREET _____

CITY _____ STATE _____

GET THE FACTS ON

LIGHTWEIGHT Concrete

Savings up to $10 per cubic yard now possible with CEMTEIN, depending upon area. First product known to positively control air in concrete. Result — produce concrete weighing any desired percentage of the weight of normal concrete without appreciable loss of strength.

For
ROOFING
FLOORING
WALLS

- *Reduces Unit weight*
- *Improves workability*
- *Lessens K value*
- *Improves waterproof property*
- *Lessens water absorbtion*

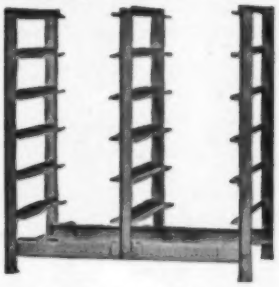
Write for FREE Booklet on CEMTEIN

(DISTRIBUTOR TERRITORIES NOW OPEN)

Address: Chemical Division, Dept. 9 PQ
Van Hoven Co., St. Paul 1, Minn.

CHASE BLOCK RACKS, CARS, PALLETS

Corrosion-Resistant Hi-Strength Alloy Steel



For Fork or Platform Lift Trucks

CHASE — THE LAST WORD IN

- *DURABILITY*
- *ECONOMY*
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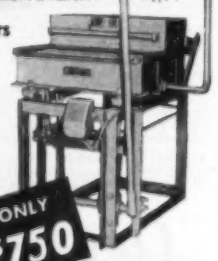
Sturdy construction
•
any style or capacity
•
Shipped knocked down
•
Rigid Field connections
•
assembled Easily

CHASE Foundry & Mfg. Co.
COLUMBUS 7, OHIO

NEW RAINBOW ROCK MACHINE
Makes $200. Profit a Day!

NEW BUILDING MATERIALS CUTS DOWN COSTS — OFFERS HIGH PROFITS

Startling new Rainbow Rock Slump Brick offers new building opportunities. Presents a modernistic effect at very low-cost for facing interior and exterior walls, fireplaces, steps, etc. Rocks made of concrete mix in varied soft pastel colors. Each 2 ft. long; 3½ inches wide, and heights of 1½, 2¼ and 3½ inches. Because they are easier to lay up, and units are larger, they cut labor costs by one-third!



RAINBOW ROCK MACHINE EASY — SIMPLE TO OPERATE! MAKES LARGE PROFITS!

Make up to 1500 Rainbow Rock Slump Brick in one day. Profits over $200 per day. Machine made of sturdy steel. Welded throughout. Operates indoors or out in little space. Uses wood pallets cut from 2 x 4 lumber. Comes complete with 1 H.P. electric motor, or powered by gasoline engine attachment for bullnose brick; full mixing formulas and instructions included.

ONLY $750 F.O.B. FACTORY *Complete with Motor*

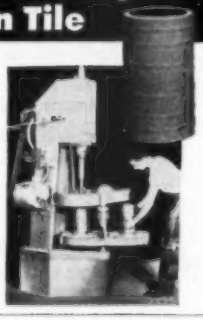
WRITE OR PHONE FOR FREE LITERATURE!

GENERAL ENGINES CO.
Dept. Q-82
307 Hunter St.
Gloucester, N. J.

New slump Brick used on home of Mr. & Mrs. Arnold Caputo; bricks by Plasticrete, Hamden, Conn.

GENERAL ENGINES CO.
DEPT. Q-82 — 307 HUNTER STREET, GLOUCESTER, N. J.

Make Money with *Champion* Cement Drain Tile



More millions of drain tile are needed to supply ever growing demand. The market is broad and profits are big.

The Champion makes the world's best drain tile. Densely compacted . . . ribbed for extra strength . . . every one truly concentric.

Champion machine is simple, compact and really rugged. Automatic feeder (optional) makes for 1-man operation. Write for literature — gives facts about the business and the equipment.

Concrete Equipment Co.
532 Ottawa Ave., Holland, Mich.

COLORS
SYNTHETIC CONCENTRATED

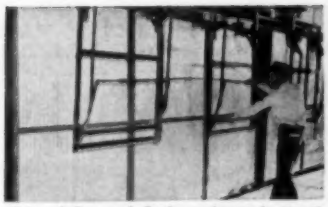
RED
YELLOW **BLUE**
GREEN **BROWN**
BLACK

Color Card on Request

REICHARD-COULSTON, Inc.

15 E. 26th St., New York 10, N. Y. Factory **Bethlehem, Pa.**

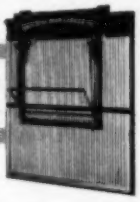
BETTER KILN CLOSURES



Universal Door and Carrier equipment in use at Superior Concrete Products Co., Augusta, Ga.

● Can help you cut your cost per block and improve your quality-uniformity—by stopping costly losses of heat and steam—and preserving uniform temperature and humidity. Two *very* good reasons for you to investigate

UNI-TEMP insulated all-metal DOORS* & UNIVERSAL world-famous DOOR CARRIERS



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the Quality plus the Gross Area of the Steel will alone determine your Net Results

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2¼" Round Rods—55,000 lbs. steel	.0982	5401 lbs.
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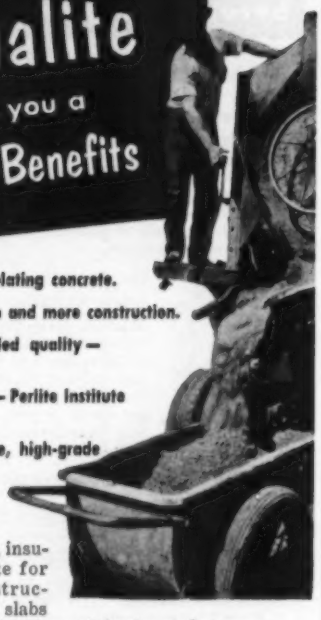

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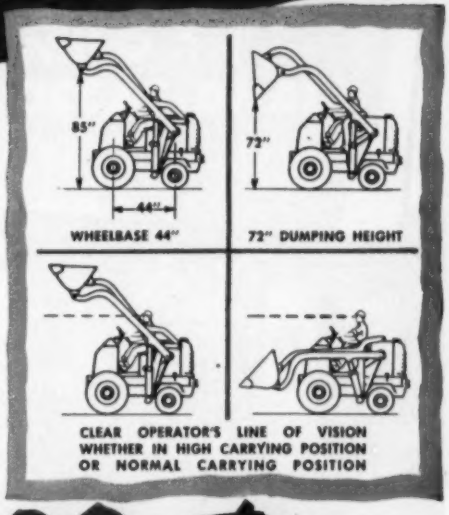

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July 31, 1952

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Adrian, Michigan

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To immediately modernize the block production and bring it up on a par with the other block producers in the community, a Stearns 15 was purchased and installed in September 1951. It has proved most satisfactory from every standpoint.

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Very truly yours,

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F. Paul Anderson
F. Paul Anderson
General Superintendent

FPA:mw

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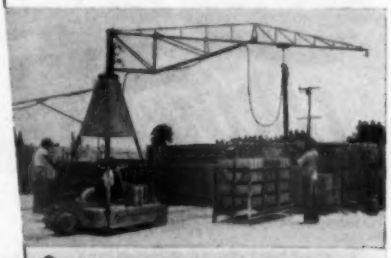
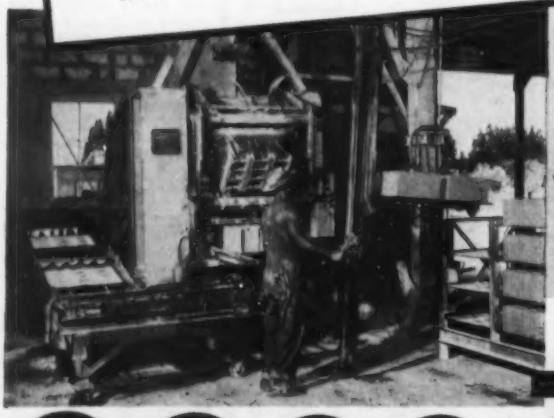


Part of Broward Quarries' yard in Fort Lauderdale, showing Stearns 15 blocks "... of very high quality from the standpoint of low absorption and compressive strengths that run over a thousand pounds." That's a Stearns Yard Hoist, too.



HERE IS THE STEARNS 15 IN ACTION which the General Superintendent of Broward Quarries, Inc., Fort Lauderdale, Florida, praises so highly. Left is the Stearns Pallet Return and right, the Offbearer, which operate so easily and efficiently that another unit of the same kind has been installed in an affiliated concrete block plant in Miami, already employing a Stearns 50-cu. ft. Mixer.

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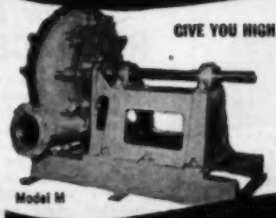

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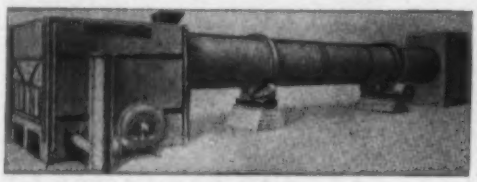

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Old-established manufacturer of process equipment has opening for qualified man to contact cement and chemical plants. Knowledge of those industries necessary. Prefer man with engineering background and actual experience in cement field. Excellent opportunity for advancement. State full details including salary. Your reply will be held in strict confidence. Our employees know of this advertisement.

BOX NO. S-5, c/o Pit and Quarry Publications
431 South Dearborn Street Chicago 5, Illinois

WANTED — USED ROCKBIT GRINDER

with about a 7½ H.P. electric motor.

Roosevelt Granite Co., Snyder, Okla.

Do you know that

BUCKET...

from old French "buket," means a vessel to hold liquids?

DO YOU KNOW THAT ECA

stocks all types, uses, brands of construction buckets?

THIS MONTH'S SPECIAL
1 YD. CLAM BUCKET

1—1 yd. Blaw-Knox single line hook-on type clamshell bucket, rebuilt, excellent condition. Wt. 3400#. BARGAIN.

AIR COMPRESSORS

Portable, 2-stage

3—500' Ing. Rand Mdl. K-500, 2 powered with Waukesha-Hercelman Diesel eng., 1 with Waukesha gas eng.

24—Sullivan, LeRoi, Chicago Pneumatic, Ing. Rand, Schramm, Gardner Denver, 60, 105, 160, 210, 315 and 500 cu. ft., gas and Diesel powered.

BUCKETS

1—2¼ yd. Blaw-Knox Speedster, clam., size 125, rehandling, wt. 5000#.

2—Northwest Type H dragline, 2½ yd., wt. 4,000# ea.

1—Williams 1½ yd. rehandler clamshell, wt. 6450#.

1—Williams Hercules 1½ yd. heavy duty digging clamshell, wt. 6200#.

2—Page Mdl. RH 1 yd. Automatic dragline, wt. 2700#.

CAR PULLER

1—Mead Morrison #952, 7½ HP 2/60/220 to handle 1 to 5 loaded cars.

CRANES, CRAWLER

1—Mdl. 501 Koehring #1079, 60-70-80' boom, 18' jib, Mdl. K Wisc. gas eng. Cap. 40,000# @ 12', 97,300#.

CRANES, LOCOMOTIVE

1—25 ton Industrial Brownhoist Type G, 40-50-60' boom, Nat'l. Board Boiler 150#.

HOISTS, STEAM

1—10½x12 D/D Lambert, w/space for boiler. Line Pull 13,000#.

1—9x10 D/D Lambert, skeleton type, drums 14x24x7".

1—8½x10 D/D Lambert, w/space for boiler, drums 14x25x7".

LOCOMOTIVE, 18 TON, STD. GA.

1—25 ton Vulcan Std. Ga. Locomotive, Ser. 3903, power 6 cyl. Mdl. JM8 LeRoi gas eng. Wt. 36,000#.

Partial list only—please let us quote on your requirements.

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1160 S. Washtenaw
Phone Nevada 8-5400

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Box P-608, Sub. of Phil.
Phone MAdison 6-2200

PITTSBURGH 30, PA.
Box P-933
Phone FEderal 1-3000

NEW YORK 7, N. Y.
30-P Church Street
Phone WOrth 2-0036

ECA
EQUIPMENT CORPORATION OF AMERICA

FOR SALE
READY MIX CONCRETE BUSINESS

Complete — in operation — New Equipment — Steady town in Southwest — Portable rock crusher and screening plant with shovel and doser — 5 new 3 cu. yd. mixers on 5 new trucks — Gross $100,000.00 in first 6 months of 1952.

BOX NO. T-10, c/o Pit and Quarry Publications
431 South Dearborn Street **Chicago 5, Illinois**

FOR VALUES— "BUY BRILL"

2—Raymond 4-roll high side mills.
5—Rotary kilns 7½'x260', 7'x160', 7'x110', 6'x60', 4'x35'.
1—New Ruggles Cole Type XH-14 Rotary Dryer 7'6"x60'.
6—Rotary Dryers 10'x90', 7'x120', 7'x60', 5'x67', 4½'x50', 4'6"x40'.
2—Jeffrey Hammer Mills 36"x24", 24"x12".
8—Tyler Hummer Screens 3'x15', 3'x10', 4'x7', 3'x5'.
1—Farrell 20"x10" Type B Jaw Crusher.
2—Sturtevant 30"x16", 30"x12" Double Roll Crushers.
1—Steel Bin 15'x25'x9' deep.
8—Bucket Elevators 34' to 90' centers, 8"x5" to 24"x8" buckets, steel enclosed.

PARTIAL LIST
Send for News Flash

BRILL EQUIPMENT COMPANY
2401-3 Third Ave., New York 51, N.Y.
Tel.: Cypress 2-5703

FOR SALE

Roll Crusher

30 x 18 Pioneer with 2 new plain roll shells—excellent condition. $2,950.00

Jaw Crusher & Feeder

15" x 36" Diamond Roller Bearings 3' x 8' Cedarapids Apron Feeder mounted on steel supports — First Class. $7,250.00

Revolving Screen

4' x 18' Telsmith Heavy Duty used 60 days. $1,200.00

POWER EQUIPMENT COMPANY
P. O. Box 2311 "Pioneer" Phone 5-0453
Crusher & Conveyor Div.
KNOXVILLE 15, TENNESSEE

FOR SALE

65 Ton G.E. Diesel Elec. Loco.
7 Cat. DW10 Tractor-Wagons
30 Ton Amer. Steel Stiffleg Derrick
130 HP Christian 2d Diesel Hoist
30 Ton Ind. Bh. Gas Loco. Crane
30 Ton Davenport Diesel Loco.
1050 ft. I-R Air Compressor, New '49
48" Telsmith Gyrasphere Crusher
556 KW F-M Diesel Generator Set
10 Koppel 5 yd. Steel Dump Cars

MISSISSIPPI VALLEY EQUIPMENT CO.
513 Locust St. **St. Louis 1, Mo.**

MINE AND SLOPE HOISTS

1—20,000# Allis-Chalmers, Dbl Drum
1—26,000# Nordberg, Sgl Drum
1—26,000# Vulcan, Sgl Drum AC with MG Set Complete
1—11,000# Wellman, Sgl Drum AC
1—16,000# Allis-Chalmers, Sgl Drum
1— 7,000# Ottumwa, Sgl Drum AC

CARPULLERS AND LOADERS

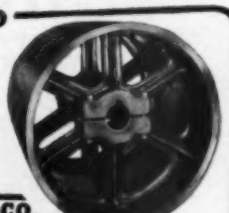
1— 6,000# Jeffrey Carspotter AC
1— 4,000# Brownie Carspotter AC
1— 5,000# Link-Belt Carspotter AC
1—20,000# Amer. Hoist Carspotter AC
1—20,000# LB Endless Puller

CRUSHERS & MISC.

1—36x36 Jeffrey Sgl Roll
1—12x16 Eagle Dbl Roll
1—18x20 Eagle Dbl Roll
1—420'x20" SA Comb. Scraper & Bucket Conveyor or w/o MT'r. Ideal for tipple or dock.
2—24"x60' SA porta. conveyors, AC mt'r
1—(New) NOLAN Porta. feeder
1—22"x66" SD-RS Roots Connersville Positive Pres. Blower output 45 CF per. Rev. Complete with 100 hp. AC MT'r and controls.
1—3 yd. Sauerman Scraper Bucket System
1—75'x28'x30' high Steel Building

126 So. Michigan Ave., Chicago 3, Illinois
HAWKINS & COMPANY
TELEPHONE HARRISON 7-0725

PYOTT PULLEYS AND SHEAVES
special and standard sizes— 2" to 102" diameter



On special size pulleys and sheaves from 2" to 102" diameter, in practically any desired hub, spoke, face width or rim design . . . in any quantity . . . Pyott delivers quickly and reduces costs. Your rough sketch, plus accurate dimensions, starts production. Write for the Pyott folder on SPECIAL SIZE CASTINGS.

PYOTT FOUNDRY & MACHINE CO.
318 North Sangamon Street, Chicago 7, Illinois • Telephone MOnroe 6-0298
The Top Quality Line — Standard and Special Sizes in Flat Belt Pulleys and V-Belt Sheaves Que-Dee Flat Belt Pulleys and V-Belt Sheaves . . . Vee-Tex V-Belts . . . Gears . . . Flywheels

L.B.SMITH INC. OFFERS

QUARRY EQUIPMENT & BINS

2036 Cedarapids primary unit.
1036/2416 Cedarapids Jr. Tandem unit.
4024 Cedarapids roll, rebuilt.
3018 Cedarapids roll, rebuilt.
Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.
Cedarapids 1236 Model 6C plant, new.
4033 Cedarapids Hammermill, rebuilt.
1030 Good Roads. Reconditioned.
10x7 Allis-Chalmers Blake type jaw crusher.
#1 Cedarapids Kubit impact breaker.
4' x 6' Kennedy Van Saun single deck.
3' x 6' Kennedy Van Saun triple deck.
15 cu. yd. Cedarapids sand drag, new.
16" x 80' bucket elevator.
60-ton, 2-compartment, 8'x18' storage bin with clamshell gates.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

SHOVELS & CRANES

Lorain 77, 1¼-yd. shovel, gas or diesel power.
Osgood Chief, 1¾-yd. diesel combination.
Lorain 57, 1¼-yd. diesel. Excellent.
Lorain L-50, 1-yd. diesel. New condition.
Lorain 40 truck crane on Mack 3-axle truck.
Unit 1020, ½-yd. shovel, good condition.

LIFTING MAGNETS

2—48" Ohio lifting magnets, rebuilt.
1—36" ECM lifting magnet, rebuilt.

MISCELLANEOUS

Barber-Greene 44C Trenching Machine.
Austin Western 77 tandem drive grader, 12' blade, scarifier.
½-yd. to 2-yd. clamshell buckets.
½-yd. to 3-yd. dragline buckets.
6-yd. and 12-yd. Sauerman buckets.

TRUCKS — TRAILERS

1½-ton Ford with any body.
LeTourneau tractor w/16 yd. Tournarocker, rebuilt.
2,000 gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

BELT CONVEYORS & BELT

New 18" — 24" — 30" — 36"

WELL DRILLS & TOOLS

Sanderson-Cyclone #42 well drill, new.
Sanderson-Cyclone #44 well drill, new.

DIESEL ENGINES

Murphy ME-46 rebuilt.
GMC 6 and 12 cylinder. Practically new.
Buda, Hercules, Hill, rebuilt.

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, rebuilt.
Gardner-Denver 500 cu. ft. diesel, new condition.
Schramm 105 cu. ft. gas powered compressor on 4 steel wheels.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven. 50 HP slip ring motor.
Worthington two-stage, water cooled, vertical 250 ±. 80 CFM, new condition.

Phone HARRISBURG, PA. 7-3431

L.B.SMITH INC. CAMP HILL, PA. SUBURB OF HARRISBURG

WE OWN THE EQUIPMENT WE ADVERTISE

FOR SALE

Complete Quarrying and Crushing Plant

1 1¼ Cu. Yd. Northwest Shovel
1 D-6 Caterpillar Angledozer
2 500 CMF Compressors
3 27 FD Rear Dump Euclid Trucks
1 3-Unit portable Pioneer Crushing Plant consisting of 30x42 primary jaw; intermediate unit consisting of 54x24 rolls; and secondary unit consisting of 54x24 rolls in closed circuit with 4x12 3-deck screen, complete with conveyors and bin. Plant powered by 3 GM Diesel Engines. Plant may be inspected operating in North Carolina.

Also Several Wagon Drills and Jackhammers

BOX No. T-5, c/o Pit and Quarry Publications
431 S. Dearborn St., Chicago 5, Ill.

102 Carryalls

Le Tourneau — LS-LP-FP-F
Wooldridge BBU-BBS-TCR
Bucyrus Erie — Garwood
Laplant Choate—Slusser-McLean

Reconditioned and (As Is) Cranes

P&H — Byars — Osgood — Unit
Bay City — Browning — Buckeye
Shovels — Bucyrus Erie Shovels
Link Belt — Michigan Truck Crane

THE ELLIS CO.
2510 W. EMPIRE AVE.
BURBANK, CALIF. ROCKWELL 9-2061

Penna. SXT-8 hammermill with 125 hp slip ring motor & Controller
Power & Mining 14"x24" double roll crusher
Coal crushers, double and single rolls
Double roll cinder crusher, 12" dia. x 16"
Universal Laboratory 6"x4" jaw crusher
Merrick Scale for 30" belt conveyor
Magnetic 18" belt feeder, 15' long
Open 95' elevator, 16" buckets on C111 chain
Enclosed 80'18" malleable buckets on C109B chain
Open 60' on chain with 14" x 6" x 7¼" buckets
Enclosed 60'10" buckets on C102B chain
Inclined steel frame, 844 chain cont., bucket elevator
Cont. 30" buckets on 8 ply belt, 70' center
New 14" and 18" trough belt conveyors
42" belt conveyor equipment for 200'
36" belt conveyor equipment for 400'
30" belt conveyor equipment for 400'
20" flat belt conveyors up to 300'
New & Used conveyor belt up to 36"
12", 14", 16" & 21" elevator belt
L-B apron conveyor, 24"x48', ¼" overlapping plates
Gear reducers and gear motors
Motors, engines, gears, sprockets
Jeffrey-Traylor type 2-A vibrating feeders
Ten single and double deck vibrating screens
Approx. 50,000 ft. of elevator and drive chain
Three electric overhead hoists
Mead-Morrison 15 hp standard car puller
Elevators and conveyors built to order
Sullivan HE-7L single drum 7½ hp electric hoist
Stimmel Winches 1½ hp 110 volts
Ideal Power Triplex 7' lawn mower
Jaw crushers, pumps, hoists

G. A. UNVERZAGT & SONS
138 Colt Street Irvington, New Jersey

SPECIAL OFFERING

1—New Acme 16" x 5' heavy duty reciprocating feeder—stock delivery.

1—Factory rebuilt Acme 18 x 32 Jaw crusher.

ACME ROAD MACHINERY COMPANY
Frankfort, New York

CARLYLE
INDUSTRIAL RUBBER PRODUCTS FOR EVERY PURPOSE

IMMEDIATE DELIVERY ON CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT
We have 8 to 48

RUBBER CONVEYOR BELTING

TOUGH COVERS — Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS — Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY — Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gouge resistant, excellent for long and short hauls and slope installations.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8"	4	1/16"	1/32"	28 Oz.
10"	4	1/16"	1/32"	28 Oz.
12"	4	1/16"	1/32"	28 Oz.
14"	4	1/16"	1/32"	28 Oz.
16"	4	1/8"	1/32"	28 Oz.
18"	4	1/8"	1/32"	28 Oz.
20"	4	1/8"	1/32"	28 Oz.
20"	5	1/8"	1/32"	28 Oz.
24"	4	1/8"	1/32"	28 Oz.
24"	5	1/8"	1/32"	28 Oz.
26"	5	1/8"	1/32"	28 Oz.
30"	4	1/8"	1/16"	32 Oz.
30"	5	1/8"	1/16"	32 Oz.
30"	6	1/8"	1/16"	32 Oz.
36"	4	1/8"	1/16"	32 Oz.
42"	5	1/8"	1/16"	32 Oz.
48"	5	1/8"	1/16"	32 Oz.
48"	8	1/8"	1/16"	32 Oz.

INQUIRE FOR SIZES NOT LISTED.
ELEVATOR TRANSMISSIONS & V-BELTING ALSO IN STOCK

All our belting made by the leading belting manufacturers.

Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS.

CARLYLE RUBBER CO., Inc.
62-66 Park Place, New York 7, N. Y.
Phone: Digby 9-3810

JAW CRUSHERS—7" x 12" up to 36" x 48"
CRUSHING ROLLS—16" x 16" up to 54" x 24".
GYRATORY CRUSHERS—#2 up to #12. Also one 13" Superior McCully gyratory crusher.
SWING HAMMER MILLS.
ROTARY PIPE CRUSHERS—#1, #1½ and #2.
DIRECT HEAT ROTARY DRYERS—3' x 25', 4' x 30', 5' x 50', 7½' x 60'.
SEMI INDIRECT HEAT ROTARY DRYERS—70" x 40' & 80" x 85'.
1—5' Raymond "Whizzer" Separator.
1—4' x 8½'—3 deck Robins "Gyrex" screen.
Hardinge, Marcy & Fuller-Lehigh mills.
RAYMOND MILLS—#0, #00, #1 and 5 roll high side.
TUBE ROD & BALL MILLS—4' up to 8' dia.
AIR SEPARATOR—5', 6', 8', 14' x 16' dia.
1—Complete Lime Hydrating Plant.
1—500 bbl. Cement Plant.
New—Used & Rebuilt Kilns—Coolers—Dryers

W. P. HEINEKEN, INC.
50 Broad St., N. Y.
Tel. Whitehall 4-4398

FOR SALE

1—5 x 60 ft. Kiln brick lined with motor and drive.....$2850.00
1—5 x 50 ft. Kiln brick lined with motor and drive.....$2500.00
1—3 x 32 ft. Rotary Cooler not lined with motor and drive.....$750.00
1—10 ft. Gaco Air Separator with motor and drive.....$1000.00
1—5 x 14 Tube Mill silex lined with motor and drive.....$1500.00
4—9 x 24 ft. Steel Vertical Bins. Each $250.00

Above located Chubbuck Lime Plant near Cadiz, California.

In Phoenix: 1 yd. Sauerman Slack line bucket with carriage $1000.00; 3", 4" and 5" Wilfly Pumps; 50 KW Diesel Generator set.

WESTERN MACHINERY COMPANY
Phoenix, Arizona
P. O. Box 3465 Ph. AL-34101

FOR SALE

1 Patterson Horizontal Pug Mill, 3 feet 6 inches by 2 feet 9¾ inches by 14 feet. Complete with Motors and Drives.

1 Lamson Sintering Fan 25,000 cubic feet @ 45 inches Static Pressure. Complete with Motor and Starter. Also Buell Cyclone Dust Collector.

1 Crocker Wheel Motor — 350 H.P., 3600 R.P.M., 440 Volts, 60 Cycle.

BOX NO. T-12
c/o Pit and Quarry Publications
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE

Bucyrus-Erie 22-B No. 52226 Shovel —Condition Excellent—Cat-Diesel—5600 hours service.
Bucyrus-Erie 22-B No. 59796 Shovel —Buda Gas—Condition Excellent—5000 hours service—also new Cat-D 318 power Unit for same.
Cat D-7 Tractor with Angle Dozer—PCU — New Cats — Idlers — Motor Overhaul—Excellent Condition—5000 hours service.

TATKO BROS. SLATE CO., INC.
Middle Granville, New York

Immediate Shipment

RAILS NEW RELAYING

Switch Material
All Track Accessories

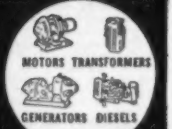
MIDWEST STEEL CORPORATION
512 Dryden Street
Charleston 21, West Va.

FOR SALE

1—Huber Tractor W/Sheepsfoot Roller Wheels Model 4002
1—Electrifugal Pump, Size 514, Type SS-1
1—2 Yard Dragline Bucket
1—3 Yard Dump Bed
1—7' x 12" Flat Bed Steel Sides—Wood Floor
1—Adnun Paver, Ser. #241
1—Westinghouse Elec. Furnace, Type H-36, Ser. #20P851, Max. Temp. 1850, Size 20x12x40
1—Westinghouse Elec. Furnace, Basket Type, Type AF2524, Ser. #21P587

RALPH ROGERS & CO., INC.
720 Argyle Avenue Nashville, Tennessee

WORLD'S LARGEST INVENTORY
NEW AND GUARANTEED REBUILT EQUIPMENT



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ELECTRIC EQUIPMENT CO.
L. D. (Long Distance) 65
ROCHESTER 1, NEW YORK
Explosion Proof Motor Headquarters

FOR SALE

Gravel and sand business for sale with ten acre pit and full line of heavy equipment currently in operation. Ideal opportunity for Ready-Mix.

HARRINGTON REALTY
Lyons Phone Burlington 197 Wisc.

CHIEF CHEMIST Wanted by CEMENT PLANT

Located on Texas Gulf Coast. Must be qualified by training and experience.

State age, experience, references and salary expected.

BOX R-4, c/o PIT AND QUARRY
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3—Euclids, 15 Ton, Rear Dump, Model 81FD, Cummins Diesel, Quarry Type Body, Fuller 5F-1220 Transmission. 1300x24 18 Ply Front, 1400x24 20 Ply Rear. Used only short time. Guaranteed 45 days. Subject to prior sale — $16,500.00 — each. All or none.

TRI-STATE, INC.
ATLANTA, GA.

20—36 Ball Bearing Universal Jaw Crusher
10—24 Ball Bearing Universal Jaw Crusher
9—36 Ball Bearing Telsmith Jaw Crusher
10—36 Ball Bearing Telsmith Jaw Crusher
14 x 26 Acme Jaw Crusher
#32 ad 40 Telsmith Gyratory Crusher
3' Symons Cone Crusher
75—100—200 H.P. Motors
16" x 16" New Holland Rolls
36" x 15' Cedar Rapids Sand Drag
½ yd. General Shovel and Crane on Rubber, 1946
36" x 12' Telsmith Feeder

BLUE BALL MACHINE WORKS
Blue Ball, Pa.

FOR SALE

2—Allis Chalmers #6-K Gyratory Crushers
1—Allis Chalmers #9-K Gyratory Crusher
1—Traylor #8 Gyratory Crusher
10—Jackhammers
2—Traylor 8" Gyratory Crusher

New York Trap Rock Corporation
230 Park Avenue at 44th Street
New York 17, N. Y.
MU 9-8500-8508

FOR SALE

Hoists, stiffleg and guy derricks, compressors, rail, locomotives, etc.

Entire Western Quarries Co. Purchased

Bargain Prices on all equipment. Send for detailed listing.

CENTRAL CONTRACTORS SERVICE, INC.
1150 N. North Branch St.
Chicago, Illinois
Phone: Michigan 2-1515

FOR SALE

2—EUCLIDS, Model 9 FDT Tractors with 58 W Bottom Dump Trailers — CUMMINS DIESELS. Excellent Condition, and Excellent Rubber.

2—LINK-BELT 20' x 6' REVOLVING SCREENS.

WINTER BROTHERS MATERIAL COMPANY, INC. VI 3-4052
SAPPINGTON 23, MISSOURI

FOR SALE

Complete Sauerman slack line outfit, with 80 ft. mass.

One dipper stick used only 50 hours. For Model K 12 Insley.

JOHN JONES & SONS, INC.
Indianapolis, Indiana

FOR SALE

ONE WILLIAMS "4 Roller Mill", High Side, Spinner Separator, main drive 75 H.P. Used 6 months, condition guaranteed. Immediate delivery by original owners. Price $14,500 complete with motors. Also available two 3,000,000 B.T.U. direct fired natural gas heaters with Brown controls and Mazon Gold Bond Automatic safety and shut off $800.00 each.

BOX NO. 8-4, c/o Pit and Quarry Publications
431 South Dearborn Street Chicago 5, Illinois

REBUILT AND NEW
GUARANTEED MOTORS
M.G. SETS • GENERATORS
Hoists • Compressors • Transformers
Units of Every Size and Description

ENGINE-GENERATOR SETS

KVA	Make	Type	Volts	RPM
300	Gen. Mot.	8-268A	480	1200
100	Gen. Mot.	3-268A	480	1200
100	Gen. Mot.	6T1	480	1200
31	Cummins	HI-6	120/208	1200
25	LeRoi	20-A	120	900
10	Onan	PE95G	115/230	1800
1½	Kohler	D-7551	110 DC	1000

HI-PRESSURE

PUMPS

GPM	Make	Type	Head
800	Worth	6DS	925 ft.
500	Manistee	H	250 ft.
300	AL-Ch.	NMZ	800 ft.

WRITE TODAY

WE'LL SELL, BUY OR TRADE
PHONE CANAL 6-2900
CHICAGO Electric Co.
1329 W. CERMAK ROAD
CHICAGO 8, ILL.

MACK TRUCKS

Like New, used on only one dirt job, mileage varies from 2800 to 4400. Equipped with Model A40X Magnadyne engine EN-377, 140 H.P. @ 2800 RPM. 10 speed Duplex Transmission, 10:00x20 (12 ply) tires all around, air brakes, heavy duty Hercules RA 6 cu. yd. rock bodies, 10 feet by 7½ feet scoop tail end complete with wear plate, hardwood cushions and full cab shield. These trucks available for inspection now near St. Louis, Mo. **Contact Cooke Tractor Co., Inc., 2120 S. 7th St., St. Louis 4, Mo. Phone SIdney 1070.**

FOR SALE

1—2 Yd. Sauerman Drag Bucket with sheaves
1—2 Yd. #37 Marion Shovel Dipper with slag front & spare pocket casting
1—2 Yd. #37 Marion Shovel Dipper with dirt front
1—2½ Yd. #37 Marion Shovel Dipper with rock front
1—2 Yd. 50-B Bucyrus Dipper with dirt front
1—#37 Kennedy-Van Saun Gearless Crusher #1623
1—#16 Good Roads Jaw Crusher
1—18 x 16 Single Roll Gruendler Crusher Order No. 37500, Code S-2
1—7½ Austin Gyratory Crusher, Type BT-316
1—#16 Superior-McCully Crusher #8324
2—4 x 12 Double Deck Link-Belt Vibrating Screens, Size CA-2412, Serial #148 and #149

Birmingham Slag Company
P. O. Drawer #155, Birmingham 1, Alabama
Phone: 6-4112

AIR COMPRESSORS
RELYED: 283, 525, 670, 1000, 1200 & 1870 Ft.
ELECTRIC: 207, 1302, 1722, 2620, 3178 & 3700 Ft.
DIESEL: 105, 315, 450, 520, 603, 807 & 1000 Ft.

CRANES — DRAGLINES — SHOVELS
9—Elec. Shovels, 1½, 10, 5, 4, 3 & 1 Yd.
4—Walker Draglines, 2-5-9-16 Yd.
3—25 & 40 Ton 150 Ft. Boom Whirleys.
7—Locos. Cranes 20, 25, 30 & 40 Ton Diesel & Steam.
8—Diesel Shovels & Cranes 1 to 3 Yd.

DUMP CARS
40—KOPPEL, 1½ Yd., 24 & 30 & 36 & 42 In. Ga., V Shaped.
115—2 Yd., 3 Yd., 4 Yd., 90 In. Ga.
60—Std. Ga. 12 Yd., 16 Yd., 20 Yd. & 40 Ton Cap.
6—10 ton Phoenix Quarry cars-std. ga.

BALL, ROD & TUBE MILLS
5'x22", 6'x22", 6'x48", 8'x22", 8'x36" & 10'x36" Hardinge Conical Ball Mills.
5'x5', 6'x6', 4'x4', 5'x4', 6'x4', 6'x6' & 7'x8' Cylindrical Ball Mills, Marcy, Allis Chalmers, etc.
4x8, 4x10, 5x18 & 7x16 Rod Mills.
2—5'x22' Rilco Lined Tube Mills.
5x22 Marg. Lined Tube Mill.

PULVERIZERS
Bradley Hercules Junior.
No. 0 & No. 1 Raymond Automatic Pulverizers.

HYDRATORS
4 & 8 T.P.H. Continuous Dustless Hydrators.
2 Clyde Batch.

SEPARATORS & CLASSIFIERS
20", 8', 10', 14' & 16' Air Separators, Shortcoast & Gayco.
6' x 14' Hardinge Counter Current Classifier.
24", 36", 48" & 60" Spiral Classifier.
Thickeners 14' to 80'.
Dorrco 4 Pocket Sizer & Several Rake Classifiers.
Dings 60"—3 Roll Type 1R Magnetic.

BLAST HOLE & WELL DRILLS
Loomis 44, Keystone 51 & 71
10—IR—FMS—Wagon Drills

JAW CRUSHERS
Blake Type—9x15, 10x20, 12x24, 18x24, 18x30, 18x36, 24x36, 36x48, 40x48, 50x42, 54x36, 42x42 & 52x36
Single Shaft Type—9x15, 10x18, 11x18, 9x30, 10x30, 12x24, 12x30, 10x36, 15x36, 18x36, 20x36, 24x36, 10x40, 50x42
Cam & Roller Type—8x10, 6x30, 10x15, 10x20, 10x26, 11x15, 11x26, 12x24, 12x26, 14x24, 15x26, 18x32, 9x40, 24x40, 32x30

REDUCTION TYPE CONE CRUSHERS
Allis Chalmers 3838 Nordbergs 5', 7' & 10'
Symons 2', 3', 4' Std. 5½' Short Head Tols. Gyr.
24", 36" & 4' Short Head
Traylor 1½', 2'-6" TY No. 12 SH, 36", 48" TS
Kennedy 19-B, 25-B, 27-B, 49-B

PRIMARY TYPE GYRATORY CRUSHERS
Allis Chalmers 5432 No. 2, 5, 6, 7½, 8, 9, 12
Superior McCully 16", 20", 25" and 42"
Austin No. 2, 4, 105, 107, 5
Traylor Bulldog 13", 14", 16", 20", Tols. 10S, 15S

STEEL DERRICKS
GUYs: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 10 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

ASPHALT & OIL TANKS
15—8000, 10000 and 20000 gal. cap. with coils.

RAILROAD CARS
100—8000 & 10,000 gal. cap. Tank Cars.
100—50 Ton & 70 Ton Battleship Gondolas.
80—50 Ton Cap. Flat Cars.
10—Side Dump covered, 70 ton Hopper Cars.

LOCOMOTIVES
DIESEL: 15, 30, 45, 65 & 100 Ton.
GASOLINE: 8 Ton, 8 Ton, 8 Ton, 12, 14 & 20 Ton
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 4 Ton, 8 Ton, 17 Ton & 40 Ton

HAMMER MILLS
JEFFREY 24 x 18 A, 36 x 24 A 20 & 49 B
WILLIAMS No. 1B SLUGGER & 60 GA.
GRUENDLER 2-KB — 5-KB & 6-KB
DIXIE—5040 MOGUL 2424, 3630 & 2860 PREMIER
PENNSYLVANIA CA-2-36 Impactor and SAT-11 & 13

ROTARY DRYERS — KILNS
60"x35' Ruggles Coles XB Indirect.
Double Shell: 48"x20', 70"x25'
Direct Heat: 4'x20', 4'x40', 4½'x40', 5'x24', 5'x30', 5'x50', 6'x25', 6'x40', 8½"x60' & 9'x60'
Kilns: 4'x45', 6'x90', 8'x80' & 9'x170'

CONVEYOR BELTS
6000 Ft. 36, 42, 48 & 60 In. Wide

SCREENS
VIBRATING: 3x6, 3x8, 3x5, 4x5, 4x8, 4x10, 4x12
HUMMER, NIAGARA & ROBINS, LINK BELT.

DIESEL GENERATORS
4—100 KW G.M. 3/60/220/440 V.
5—60 KW International 3/60/220 V.
3—50 KW Superior 3/60/220 V.
3—74 KW Caterpillar 3/60/220/440 V.
1—100 KVA Baldwin DeLavergne 3/60/440 V.
1—New 600 KW American 3/60/480 V.
1—300 KW Chas. Pres. 3/60/2300 V.
1—300 KW F.M. 3/60/2400 V.
1—438 KVA Worthington 3/60/2300 V.
8—230 Volt Direct Current 50 to 800 KW
1250 KVA Nordberg 3/60/2300
1—600 KW Gen. Motors 2300V
2—1000 KW, Gen. Motors, 4160/2400 V.

R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N. Y.

54" Hyd. Balanced Plunger Valve
315 to 1232 CFM Air Compressors, all types.
12" x 30", 18" x 55", 20" x 80" Conveyors
1½ to 3 yd. Transit Mixers, many makes.
1 yd. Hough HL Diesel Payloader
CRUSHERS: 10x20 Univ., 15x36 Diamond, 10x30 Good Roads, 18x24 Univ. 20x36 Cedar Rapids, 48x36 Farrell JAW, #25 Kennedy, 27 Newhouse 10B, 13B Telsmith, 4' Traylor TY GYR. 36x16 & 5x24 DBL ROLL, Port. & Stat'y. Crushing Plants.
MILLS: Williams 4 & 5, Gruendler 2XC, 3XB, #2 Univ. #22 Gilson Hammer, Raymond 4 & 5 Roll. 6x8 & 8x8 Ball. 3x22 Tube.
NW2, 25, 6 & 8, Link Belt K376 Lima 862, Monighan 37, P&H 1055 DRAGLINES.
SHOVELS: Koehring 205, Link Belt LS75, Buckeye 70, 1 yd. Byers, NW6, Lorain 77 & 79, Lima 604, Bucyrus 52, 54B, NW78 & 80D, Lima 1201, Marion 49A, Bucyrus 80B Elec.

Repres.: Bonded Scale & Machine Co.
Thurman Machine Co.

MID-CONTINENT EQUIPMENT CO., INC.
6321 Gannon St. Louis 24, Mo. Wydown 2826

TRUCKS: 10—End dump, 1947, model FC2C, 30 ton, Mack, 300 H.P. diesel motors.

SHOVEL: Bucyrus Erie 37-B, Caterpiller D13000 diesel, 1½ yd. cap. Shovel Front for 37-B Bucyrus Erie.

LOCOMOTIVE CRANE: Link Belt, bucket operating, gasoline powered, standard railroad gauge.

GYRATORY CRUSHER: Allis Chalmers 10-K.

CRUSHERS, JAW: Sizes 12" x 15" to 48" x 60".

COMPRESSORS: Worthington DC2, 29/18½ x 21, motor 600 H.P. synchronous, 440 volt, with all auxiliary equipment. 4—Ingersoll Rand Diesel portable, 500 cu. ft. @ 100 lbs. pressure, New 1951.

DIESEL MOTOR: Caterpillar D13000 portable on skids, 122 H.P.

DRYERS & KILNS: 2—Kilns 7'6" x 7' x 125 ft., complete with all auxiliary equipment, including Fuller movable grate type Coolers with all auxiliary equipment. 2—10 ft. x 90 ft., heavy duty, with or without auxiliary equipment, condition like NEW. One located in Minnesota. 1—10 ft. x 25 ft. and one 5 ft. x 50 ft.

AIR SEPARATOR: 1—Bradley 16 ft. with or without 100 H.P. 440 volt motor, 830 RPM, type C1, variable speed, 3 phase, 60 cycle; Wound Rotor 300 volts, 222 amps.

PULVERIZERS: Hardinge 5' x 22", steel lined, Ball Mill, complete with disc feeder and 30 H.P. motor. Marcy 5' x 13'. Rod Mill, double end, center discharge 250 H.P. motor. 2—5' x 14' Marcy open end Rod Mills, center discharge.

CLASSIFIERS: 4—Akins and Wemco 54" and 78", single screw, double pitch, weir type, 220/440 volt motors, all in new condition. Two of the above located nead Reno, Nevada. 1—Dorr 5' x 29' rake, with 22' bowl, New condition.

BOOT BUCKET ELEVATORS: 3—Fully enclosed Chain Bucket Elevators 24" x 45" x 40' centers, bucket 9" x 12" x 7" deep, links 2½" x 4", bucket to bucket center 16", with 10 H.P. motors and speed reducers, 220/440 volt, A.C.

A. J. O'NEILL
Lansdowne, Pa.
Phila. Phones: MAdison 3-0300—3-0301

Euclid Trucks 18 Ton—22 ton End Dump—13 Yd. and 25 Yd. Bottom Dumps—15—25 Yd. Bottom Dump without tractors.

4—Elec. Std. Ga. Dump Car locomotives—600 volt with 17-std. ga. air dump cars—25,000 lb. cap. 130 Cu. Ft. level, with all elec. equip. Goodman 10 Ton Mine Loco—550 Volt 36" Gauge. Ottumwa Mine Hoist—1¼" Rope—300 H.P. Motor—885 RPM. complete.

Jaw Crushers 36" x 48" Nordberg—36" x 48" Farrel—60" x 48"—42" x 40"—42" x 30"—36" x 36"—15" x 36"—15" x 36" Symons Cone 5½'—4'—3'—2'—50 x 46 Dixie hammer mill—54" Traylor Type "A"—42" McCully—48" Gyrosphere.

Shovels—Roll Crushers—Rod Mills—Ball Mills—Rotary Kilns—Dryers—Log Washers—Classifiers—Mine Hoists—Transformers—Motors—Gravel Plants—Blast Hole Drills—37T-29T-42T Generator Sets—Drag Lines.

2—35' A.C. Log Washers

STANLEY B. TROYER
Theatre Bldg. Tel. 900 Crosby, Minnesota

Stock Specials

For Sale or Rent

1—Osgood, 1 yd. Crawler Hoe & Crane, 50' boom, Gas Power. Good Condition.

1—Bay City Model 45 Crawler Hoe-Shovel, Gas Power, Late Model.

1—Marion Model 331, ¾ yd. Crawler mounted Shovel-Crane-Hoe, gasoline power. Completely rebuilt.

1—Buckeye Model 70, ¾ yd. Crawler Hoe & Shovel. Late model, Diesel power.

1—Lorain Model 40 Shovel, ¾ yd. Crawler Crane & Hoe, gasoline power, rebuilt.

1—Byers, Model 83, ¾ yd. Crawler Hoe or Crane, gasoline power. Rebuilt.

1—Bay City Model 25, ½ yd., crawler hoe-crane, gas powered. Excellent condition.

1—General, Heavy Duty, ½ yd. Crawler Shovel, Hoe or Crane, gasoline power. Rebuilt.

1—Insley Model K-12, ½ yd., 1946, Hoe, on 18" Crawlers. Powered by Buda Gas Engine. Excellent condition.

1—Bay City Tractor Shovel, Hoe or Crane, "Pup" ¾ yd., ¾ swing, Crawler mounted, gasoline driven.

1—Browning Truck Crane, ¾ yd., 17½ ton capacity. Late Model. Excellent Condition.

1—Universal Truck Crane, 28 ft. Boom, mounted on A. C. Mack Chassis. Cheap.

1—P&H 255A Hoe Attachment.

Clamshell Buckets, ¾ to 2 cu. yd., also several Crane Booms—Trench Hoes and Shovel Attachments — Assorted makes.

Check on what you may require.

EUGENE P. READING, INC.
Walnut St. & B. & O. R. R.
Roselle, New Jersey
Chestnut 5-0200 — New Jersey

FOR SALE

LOCOMOTIVES

1—Plymouth 18 Ton Std.—or 48" Ga., Diesel.
1—Brookville 10 Ton Diesel—36" Ga. Like New.
2—Whitcomb 15 Ton Diesel—36" Ga.
1—Plymouth 20 Ton Gas—36" Ga.
2—Plymouth 25 Ton—36" Ga., Gas.

8—TRUCKS WITH MOTORS FOR WHITCOMB 65 TON DIESEL-ELECTRIC — LIKE NEW — BARGAINS

WHITCOMB 50 TON STD. GA. DIESEL-ELECTRIC—TYPE 0-4-0—EXCELLENT—BARGAIN

CARS

21—15 Ton Hopper—36" Ga.
2—50 Ton Hopper Cars—Excellent.
25—Std. Ga.—5 Yd.—Quarry Cars. Heavy Duty.
10—Western 20 YD Air Dump.

MISCELLANEOUS

2—Conway 75 Muckers—#264 & 305. Large Number New Repair Parts. Very Cheap.
1—100 Ton Stiff Leg.
3—Heebring WD-60 Dumpters—2300 Series.

R. H. BOYER
2005-13 W. Ballevue St. Philadelphia 40, Pa.
Phone SA. 2-7132

1—D-6 Front-end Loader
1—25-Ton Link Belt HC-90 Truck Crane 120' Boom
1—30-Ton Bay City Truck Crane, 50' Boom, 15' Jib
1—20-Ton Northwest Truck Crane
1—¾ Yd. Bay City Diesel Crane
1—2 Yd. Koehring 803 Crane
2—1¼ Yd. Bay City Crane or Shovel, Diesel
1—¾ Yd. Lima 34 Shovel, Diesel
1—30-Ton Davenport Diesel Locomotive
1—50-Ton Whitcomb Diesel Elec. Locomotive
1—44-Ton G. E. Diesel Elec. Locomotive
2—No. 6 and 90-D Northwest Shovels
1—Northwest 25 Shovel Attachment
1—40-Ton Industrial Brownhoist Oil Fired Loco. Crane, New 1943
1—New 45' Boom & 19' Jib for Link Belt 83 or 90

B. M. WEISS COMPANY
Girard Trust Co. Bldg., Philadelphia 2, Pa.
Rittenhouse 6-2311

FOR SALE

170-B BUCYRUS ERIE Shovel, 6 yard
120-B BUCYRUS ERIE Shovel, 5 yard
EUCLID Rear Dump Trucks
42-T BUCYRUS ERIE 9" Drill
80-D NORTHWEST Shovel, 2½ yard
54-B BUCYRUS ERIE Shovel, 2½ yard

BOX No. Q-8, c/o PIT AND QUARRY PUBLICATIONS
431 S. Dearborn St. Chicago 5, Ill.

FOR SALE OR RENT
Late models 85-95% new condition.
2—Osgood 1¾ yd. standard shovels, Cat D-13000, New Nov. 1949 & April 1951. Used very little.
2—TD-24's, B-E DDPU & angledozers. #2051 & #825.
2—Cat. D-8's, 25 PDU & SA blades. 2U-10440, 2U-4031.

National Construction Co.-R. Snyder
23500 Lakeland Blvd. RE 1-6100 Cleveland, Ohio
Evenings—Willoughby 2-2821

FOR SALE

90 ft. of new No. 82 chain; 60 — 6x6x12 heavy gauge buckets, all suitable for elevator or ready-mix plant for which it was purchased.

RAABE GRAIN COMPANY
Continental, Ohio

Locomotives — Diesel — Gas — Fireless
Batching Plants
Hydraulic Dredges
Railroad Cars
Loco Cranes — Diesel — Steam
Crawler & Truck Cranes
Shipyard & Gantry Cranes
Hoists

"STONE THE CRANE MAN"
1132 Prudential Bldg., Buffalo 2, New York
Phone MOhawk 4404

Locomotives, 7 to 80 tons, diesel, gas, steam.
Shovels, Draglines, Cranes, 1¼ to 10 yds.
Loco. cranes, 18, 20, 30 tons, gas, steam.
Whirley cranes, Am. 10-135, Clyde 17, Colby 200.
Walking draglines, 3, 6-7, 9½, 12, 15 yds.
Euclid, Mack rear dump trucks, 32 & 25-ton.
Crushers: Telsmith 25A gyr. 30", 42", 54".
Dryers, Kilns, 54"x40', 74"x47', 9'x10'x170'.
Nordberg—G.E. 875 KW diesel generating set.
B-Erie 2¼-yd. shovel attach. only, 52B-35B.

H. Y. SMITH COMPANY
528 N. Broadway Milwaukee 2, Wisconsin

COMPLETE CRUSHING PLANTS

1—16'V PIONEER PORTABLE, 350 TON CAP.
1—30" x 42" AUSTIN WESTERN PRIMARY DIESEL.
1—16" x 36" WOOD SECONDARY DIESEL.
1—15" x 30" DIAMOND PRIMARY & SECONDARY.
1—15" x 36" FARREL ELEC. & 24" x 120' CONVEYOR.

DARIEN, 60 E. 42nd St., New York 17, N. Y.

JAW CRUSHERS — 6" x 3" to 60" x 48"

Before buying or selling any
FARREL-BACON JAW CRUSHERS
it will pay you to consult

BACON-PIETSCH Co., Inc. 149 Bway.—N. Y. City—Di. 9-3620
Engineers & Manufacturers — Send for Catalogue

Machine Shop Facilities
FEEDERS, Conveyors, Screens, etc.

FOR SALE

BLAKE JAW CRUSHER

12" x 16". Flat pulley drive—A-1 shape. Price $750.00.

UNION MINING COMPANY
2041 Oliver Bldg., Pittsburgh 22, Pa.

FOR SALE

One ME650 Murphy Diesel Generator set. 109 KW, 440 Volt, 3 phase, 60 cycle. Excellent condition—bargain price.

Contractors Machinery Co.
Grand Rapids, Michigan
Phone—61197

FOR SALE

1—1¼ yd. Sauerman slackline, complete. This outfit consists of bucket, hoist, 100' mast, roller bearing blocks and carriage, trackline and guys.

DRIFTWOOD GRAVEL COMPANY
Box 9 **Columbus, Indiana**
Phone: 3182

FOR SALE

Profitable, going limestone crushing business for sale. Excellent supply, high grade stone available. Midwest Location.

BOX No. T-2, c/o Pit and Quarry Publications
431 S. Dearborn St., Chicago 5, Illinois

FOR SALE

10,000 Ft.—5" Heavy Duty, General Purpose, Hose, 5-ply, 50' lengths. Suitable for Irrigation, Hydraulic Mining, etc. Reg. $6.00 ft. Our Price: $1.50 ft.

Construction & Power Machinery, Inc.
270—23d St., Brooklyn 15, N. Y.
South 8-4900

FOR SALE

G.M.C. Diesel Powered Generator, engine No. 63392, 600 volt output, 25 cycle, 3 phase, 550 volt, complete with B.E.P.O. control panel. Can be seen in operation at

INDUSTRIAL SAND & GRAVEL CO., LIMITED
Cooksville, Ontario **Phone: Georgetown, Ont., 298**

This size ad in this Broadcast Section can place your offerings before more than 15,000 potential buyers at a cost of only $16.00.

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*Largest Classified Advertising Section Serving the Industry

NEW DORR RAKE CLASSIFIERS
7 ft. x 30 ft. Type DSFX

CLYDE HYDRATOR WITH KUNTZ CONTINUOUS DUSTLESS SYSTEM, 4-5 T.P.H.

#1 RAYMOND AUTO PULVERIZER WITH THROWOUT, SEPARATOR & CYCLONE.

KUNTZ 5 x 20 CONTINUOUS HYDRATOR.

3 ROLL BRADLEY HERCULES JR. PULVERIZER.

4 x 20 & 4 x 45 & 6' x 60' ROTARY KILNS OR DRYERS.

2 ROTARY KILNS
5'6" x 7'0" x 60'0"

SHELLS FOR ROTARY KILN OR DRYERS
24 Ft. - 8'0" Dia. - ⅝" Plate
30 Ft. 6'0" Dia. - ½" Plate

ROTARY DRYERS

RUGGLES COLES A-10 DRYER 70" x 33' DOUBLE SHELL.

WILL CONVERT TO SINGLE SHELL, PARALLEL FLOW.

28 SURPLUS NEW BELT CONVEYORS

30 INCH 1-136'—1-270'—2-350'—1-418'—2-500'—1-1100' & 2-1500' Long.
36 INCH 1-160'—2-250'—1-320'—1-400'—1-590'—2-1000' & 1-1600' Long.
42 INCH 1-144'—1-390'—1-377'—1-575'—2-700'—1-800'—2-1500' Long.

6½ TON 80 FT. SPAN 2½ YD. CAP.
GRAB BUCKET OVERHEAD 3/60/440
SHEPARD NILES O.E.T. CRANE

10 SURPLUS MERRICK E WEIGHTOMETERS
1 for 24 In. 8 for 30 or 36 In.
1 for 42 In. Belt

CRUSHERS
42 x 48 AC Superior Jaw.
24 x 36 Farrell Jaw.

DUMP CARS
75—3 yd. V. 36 ga. Koppie.
135—2 yd. 24 & 36 ga. V shape.

DARIEN CORPORATION
60 E. 42nd St., New York 17, N. Y.

For Sale — In South Central Indiana

126 acres Aglime and fluxing stone. Established 1940 gross 1951 near $100,000. This is a going business and can be expanded. Priced to sell. Reasons for selling, to dissolve partnership.

Box No. S-9 **c/o Pit and Quarry**
431 S. Dearborn St. **Chicago 5, Ill.**

FOR SALE

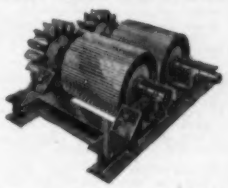
NEW CONVEYOR BELT
20" wide 6 x 4 ply Heavy Duty; 230 ft.
NEW WIRE ROPE; WIRE ROPE CLIPS ALL SIZES
CHAIN HOISTS — SPUR GEARED
BOX NO. T-14, c/o Pit and Quarry Publications 431 South Dearborn Street, Chicago 5, Illinois

COME AND GET IT!

Guaranteed Equipment

Write, phone, wire in advance. If it's in stock, it will be ready and waiting for you to pick up.

CINDER, PUMICE, PERLITE CRUSHERS



10 to 20 tons per hour capacity $ 479.00
25 to 50 tons per hour capacity 1144.00
Complete with hopper.

VIBRATING SCREENS

Eccentric weight types. Several in stock from 2' to 4' to 3½' x 8'.
Priced with cloth from $431.00

Heavy duty eccentric shaft types. A few on hand, in excellent condition. Sizes 3' x 8' to 5' x 14'. One to 5 decks.
Priced with cloth from $1499.00

HEAVY DUTY PLATE AND PAN FEEDERS

Complete with motor and drive.
Priced from $423.00

TRUCK SCALES

20 Ton Truck Scales $617.00
26 Ton Truck Scales 684.00
30 Ton Truck Scales 895.00

Others to 50 ton capacity. All scales complete with structural steel weighbridge. Parts and weighing beams for most makes of motor truck scales.

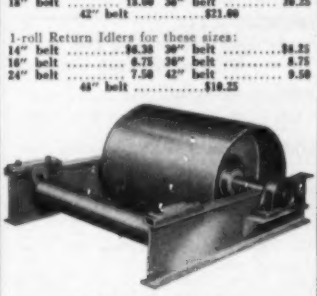
SAVE! BUILD YOUR OWN CONVEYORS

3-roll Troughing Idlers for these sizes:

14" belt	$16.50	24" belt	$18.75
16" belt	17.25	30" belt	19.50
18" belt	18.00	36" belt	20.25
	42" belt		$21.00

1-roll Return Idlers for these sizes:

14" belt	$6.30	30" belt	$8.25
16" belt	6.75	36" belt	8.75
24" belt	7.50	42" belt	9.50
	48" belt		$10.25



All welded steel pulleys.

Head Pulleys in frame from $154.00
Takeup Pulleys in frame from $189.00

Bonded Scale and Machine Co.
110 Bellview **Columbus 7, Ohio**
PHONES:
GArfield 2186; **FRanklin 6-8398, Eve.**

EVERYONE AGREES!!

RUNNING A BUSINESS WITHOUT ADVERTISING IS LIKE WINKING AT A GIRL IN THE DARK — YOU KNOW WHAT YOU'RE DOING—BUT NOBODY ELSE DOES

Advertise your used equipment
regularly in the
BROADCAST SECTION
of
PIT AND QUARRY

431 So. Dearborn St. **Chicago 5, Ill.**

Over 15,000 potential buyers at your fingertips

YOU PROFIT WHEN YOU BUY FROM A LONG ESTABLISHED COMPANY

ROTARY KILNS:

3—6′ x 60′ Vulvan Iron Works, complete; each with or without 3′ x 50′ Rotary Cooler. By installing lifting flights these kilns would make excellent heavy duty dryers.

1—7′ x 45′ Link Belt Kiln, complete; 1—7′ x 120′ Vulcan Iron Works; 1—8′ x 135′ Allis-Chalmers.

PULVERIZERS:

2—#5047 Raymond High Side, 4 rolls, one mill equipped with "whizzer" type air Separator and oil journals; both mills equipped with Raymond exhausters, cyclones and inter-connecting piping.

1—#5057 Raymond 5-roll High Side, with oil journals, separator, exhauster, cyclone, all piping, etc.

6—No. 1, #0, 00, 000, 0000 Raymond.

3—#0, 00, and 8″ Raymond Screen Mills.

4—Mikro #2SI, 2TH, 4TH.

ROTARY DRYERS:

1—2′7″ x 10′ Link Belt Roto Louvre, complete.

4—Ruggles-Coles Direct Heat; Class XF4-54″ x 25′; 2-Class XF 5′ x 40′.

3—5′ x 30′, 6′ x 40′, 6′ x 60′.

1—Louisville 6′ x 50′ Rotary Steam Tube Dryer; also 6′ x 27′ Louisville, with 42 S/S tubes.

1—70′ x 70′ Louisville, Type L, direct heat.

BALL AND TUBE MILLS:

1—4′6″ x 7′ Ball Mill, Allis-Chalmers, iron lined, used 100 hours.

4—Tube Grinding Mills, made by Traylor E. & M. Co., Allentown, Pa., Silex lined, 4′ x 13′, 4′6″ x 18′6″, 4′ x 22′ and 5′ x 20′. Also two 5′6″ x 20′ iron lined, with motors.

8—Pebble Mills, porcelain lined; 3—6′ dia. x 8′, 800 gals. each. 1—6′ x 5′; 3—5′ x 4′, each with ball charge.

VIBRATING SCREENS:

1—4′ x 10′ #38 Tyler 2 decks with m.g. set.

3—Selectro 3′ x 6′ 2-deck, 1—3′ x 6′ 1-deck, all totally enclosed, heavy duty.

1—3′ x 6′ Colorado Iron Works, 1-deck.

1—4′ x 8′ Tyler Niagara, 3 decks.

8—Tyler Hummer, 3′ x 5′, 4′ x 5′, 4′ x 10′.

AIR SEPARATORS:

2—Raymond 6′ and 16′ dia., 1—8′ Gayco; 1—16′ Sturtevant.

CRUSHING ROLLS:

1—42″ x 16′ Allis-Chalmers, Type B.

1—24″ x 32″ Penna. Single Roll, with motor.

DORR CLASSIFIERS:

1—7′ x 30′ UNUSED Dorr Twin Rake Classifier.

2—Two stage Washing Classifiers, each with two rakes in tandem, in steel trough 26′6″ long x 3′ wide, with drives.

1—6′ x 14′ Hardinge Rotary Counter Current Classifier, also used for dewatering and scrubbing.

Also Shovels, Cranes, Draglines; Jaw Gyratory and other crushers; Symons and Telsmith Cones; Complete Portable Crushing Plants; Rotary Kilns and Coolers; Air Compressor; Conveyors, etc.

CONSOLIDATED PRODUCTS COMPANY, INC.

17-19 Park Row, New York 38, N. Y.

BArclay 7-0600

FOR SALE

COMPLETE PORTABLE ROCK CRUSHING AND SCREENING PLANT

COMPLETELY RECONDITIONED IMMEDIATE DELIVERY PRINCIPAL ITEMS IN PLANT:

1—4¼′ Symons Cone Primary Crusher powered with an LP601 Cummins Diesel engine, 250 HP, mounted on a heavy 3-axle pneumatic tired chassis. This unit is also equipped with a 2-stage compressor with electric motor for starting.

1—36″ Telsmith Cone Secondary Crusher powered with a UD-18 International Diesel engine, and equipped with a Symons 4′ x 12′ double deck vibrating screen powered by electric motor. This unit is also equipped with a bucket return elevator and an undercrusher conveyor, both powered by electric motors. The entire Telsmith unit is mounted on a heavy 3-axle pneumatic tired chassis.

1—3′ x 6′ Symons Screen, single deck, type F.

1—Caterpillar D13000 Diesel generating set, 75 KW capacity, mounted on 2-axle pneumatic-tired chassis. This unit is built over for weather protection. For use in conjunction with the generating set, there is also a 2-wheeled pneumatic-tired trailer equipped with a 7-unit switchboard for central control.

3—Portable conveyors, 30″ x 52′, powered with electric motors.

1—Portable conveyor, 20″ x 40′, powered with electric motor.

Approximate Capacities in Gravel Pit with 60% Crushing Required From 10″ to 2″, 200 tons per hour—From 10″ to 1″, 150 tons per hour.

PRICED AT ONE-HALF THE COST OF NEW PLANT

Brown-Bevis-Industrial Equipment Co.

4441 SANTA FE AVENUE

LOS ANGELES 58, CALIF.

FOR SALE

1—Telsmith #8 Cone (reduction) Crusher with cast steel frame. Will take 5″ minus material and reduce to 1¼″ and do a nice job. Rated capacity at 1¼″ is 75 tons per hour. F.O.B. Nashville, Tenn....$1,000.00

1—Gilson #14 Pulverizer complete with grating bars and spacers ¼″ to 2″ with 23′ bucket type elevator, 8″ buckets, guards, drive chains and speed reducer, and mounting brackets. F.O.B. Nashville, Tenn. $1,200.00

1—Telsmith 3 x 8 Pulsator Screen complete with used 5 h.p. motor. F.O.B. Nashville, Tenn. $1,550.00

1—Traylor Cone Crusher complete. F.O.B. Nashville, Tenn. $1,000.00

1—Universal 1020 Portable Jaw Crusher mounted on four steel wheels complete with International U-21 Power Unit. F.O.B. Nashville, Tenn.....$1,500.00

1—Day Model MR-40 Pulverizer, opening size 9½″ x 16″, mounted on wooden skids, complete with pulley and flywheel. F.O.B. Nashville, Tenn.....$995.00

1—Cedar Rapids 3′ x 9′ 3-chain Apron Feeder complete with flared sideboards and bin mounting. Excellent condition. F.O.B. Nashville, Tenn.....$2,000.00

1—Diamond 4′ x 10′ 3-deck, Vibrating Screen, complete with bin mounting. F.O.B Nashville, Tenn.....$1,000.00

Subject To Prior Sale

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W. C. McDaniel — **Ed Maddux**

FOR SALE

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BOX No. T-4, c/o Pit and Quarry Publications

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IOWA 20″ x 36″ RB. Primary Portable Plant. Feeder, Power, Underconveyor. Tandem trailer. Good. $12,500.00.

IOWA 25″ x 40″ RB. as above. $18,500.00.

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UNIVERSAL 20″ x 36″ RB, Jaw. New. $6500.00.

APRON Feeders. 24″, 36″ & 42″. Various lengths.

PIONEER 30″ x 42″ RB. complete semi-portable Crushing Screening plant, 24″ x 30″ RB. Jaw, 40″ x 22″ RB. Double Rolls, (2) 4′ x 15′ 2- & 3-deck Vibr. screens. Conveyors. Murphy Diesel. Sell whole or split.

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UNIVERSAL #880 jr. GRAVELMASTER & TWIN DUAL MASTER.

PIONEER 24″ x 18″ RB. Double Roll. Like new. $1600.00.

HAMMERMILLS, Iowa #4033, Universal #4, 3; DIXIE 30-33.

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Belt—All widths and lengths (write for complete listing).

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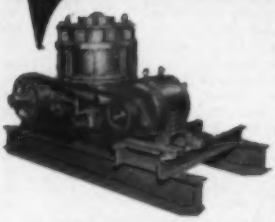

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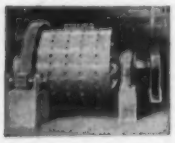
A California Crushing Plant was using 30" x 18" rolls which required daily welding to maintain product size. Lost production due to the daily shutdown, coupled with the high cost of the welding itself caused the plant to suffer from unusually high maintenance expense. During a modernization program the plant installed a 3 ft. KUE-KEN Gyracone. *Capacity was increased 100%, with less power requirements!* Furthermore, the plant discovered that the increased percentage of smaller sizes of rock produced by the KUE-KEN allowed them to meet state specifications with ease.



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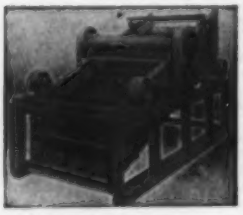

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KUE-KEN

FOR BETTER CRUSHING AT LESS COST!

LONGER LIFE
***Only* KUE-KEN**

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Write for factual illustrated data.

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Note extremely low headroom . . . only 39" high. Takes choke feed. Fits easily into flow sheet. Product size is quickly and easily changed.

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Sir W. G. Armstrong Whitworth & Co. (Ironfounders) Ltd., Authorized Licensed Manufacturer and Distributor Close Works, Gateshead-upon-Tyne, England.

Every small worm gear unit is built to precision standards—as outstanding in quality and performance as larger size Clevelands.
Illustrated above are the 10 AT (left) and 00 D (right) speed reducers.

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As built by Cleveland, the worm gear reducer is a drive of many advantages:

1. It is compact and inherently quiet, transmitting power with smooth, uninterrupted torque flow.
2. Its right-angled design saves valuable space.
3. It has a minimum of moving parts.
4. Shock load resistance and other factors of safety are high.
5. Rate of wear of case hardened steel worm on nickel-bronze gear is very low, insuring long life.

Write for Bulletin 114F which illustrates and gives engineering data on smaller size Clevelands—many now available for immediate delivery. The Cleveland Worm and Gear Company, 3280 E. 80th St., Cleveland 4, O.

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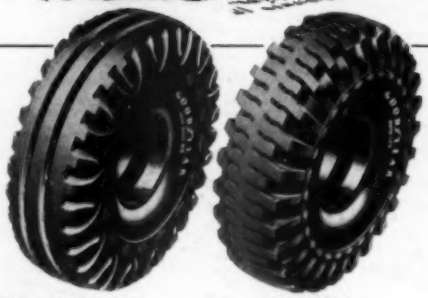
HARD ROCK LUG
Super-tough champ in all types of tire-killing work.



HARD ROCK RIB
Companion tire for front wheels in all tire-killing service. Easier steering, smooth rolling, same cord body, same shoulder and sidewall as the Hard Rock Lug.

ROAD LUG
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